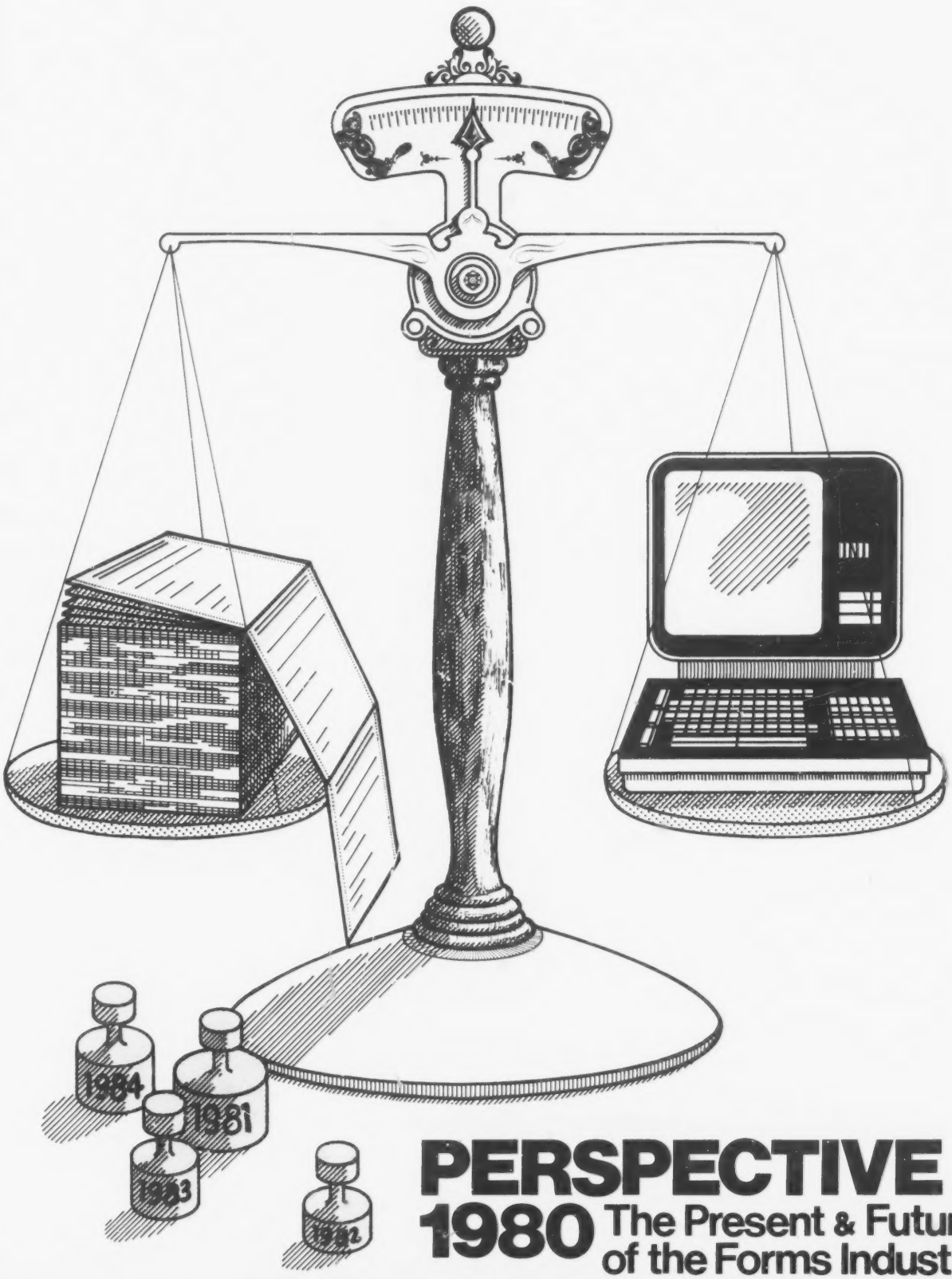
A5785 2

International Business Forms Industries, Inc.



PERSPECTIVE 1980

The Present & Future of the Forms Industry

A membership service sponsored by Officers and Directors of International Business Forms Industries, Inc.

OFFICERS

CHAIRMAN - George T. Holden, Holden Business Forms Company
VICE PRESIDENT - U.S. and Canada, Robert A. Shade, Shade Information Systems, Inc.
VICE PRESIDENT - International, Toshiro Kitahara, Jyoni Business Forms Company, Ltd.
TREASURER - Carl O. Westring, E-Con-O-Pak Business Forms
SECRETARY - Gus A. Stavros, Better Business Forms, Inc.

DIRECTORS

John Hunt Harris - Star Forms, Inc.
Donald R. Johnson - Forms Manufacturing Equipment, Inc.
Walter J. Kearns - Burroughs Corporation, Office Products Group
Frank Neubauer - Transkirt Corporation
Tord Ohlsson - Aktiebolaget Parajett
Edwin Strasser - Reynolds & Reynolds Company
Andre Beaudet - Southam Business Forms
Charles Raphael Levy - Interprint Impressora S.A.
James H. Norick - Norick Brothers, Inc.
Michael C. McDonough - NN Dataforms, Inc.
Kenneth A. McCrady - Ennis Business Forms, Inc.
Richard P. Sherrer - Appleton Papers Division
Harry T. Gardner - Johnston Business Forms, Inc.
O. Jack Holloman - Vanier Graphics/Curtis 1000
John T. Kennedy - A. J. Kennedy & Company
James R. Orwig - Forms Manufacturers, Inc.
Karl Spiess - Blockfabrik Lichtensteig

PERSPECTIVE 1980

Prepared at the direction of the IBFI Economic Research Committee of International Business Forms Industries, Inc. for the benefit of the Industry and its customers.

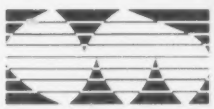
COMMITTEE MEMBERS

Philip R. Bondi, Chairman - The Standard Register Company
George Cummings - Autographic Services, Inc.
Steven A. Fortman - Climax Press, Inc.
Rick Hardesty - Rowan Business Forms, Inc.
Richard M. Jackson - Jet Printing, Inc.
Willett R. Lake, III - Shepard Business Forms
Robert Matthews - Data Documents, Inc.
Thomas W. Reese - Hickory Business Forms, Inc.
William D. Riley - Allied Business Forms
Frank Roberts - The Stevens Corporation
Doug Rommell - Business Forms Systems Division, Harris Corporation
Richard Stewart - Frye Copysystems
Al Subrinzio - Potter Press
K. A. Thomson - Penntech Papers, Inc.
Denis K. Vanier - Vanier Graphics/Curtis 1000
Greg Waddell - SCM Allied/Egry Business Systems

IMPLEMENTATION BY THE IBFI STAFF

Norman McLeod . . . . . Director, Economic and Market Research
Elizabeth Billings. . . . . Assistant Research Director

International Business Forms Industries, Inc.



Copyright ©1980, by International Business Forms Industries, Inc./PIA
1730 North Lynn Street, Arlington, Virginia 22209

TABLE OF CONTENTS

	Page
Introduction	1
Executive Summary	4
1979 Sales Results	7
1979 Operating Ratios	14
Updating the Decade's Results	18
The IBFI Forecast	21
Sales Patterns During The Seventies	24
The Economic Climate	29
Forecast Summary and Highlights	38
Forms Into The Eighties	41
Conclusion	62
Appendices	64

LIST OF CHARTS & GRAPHS

Page

IBFI Forecasts Vs. Results 2
The Market in 1980 5
1979 Sales Results 7
1979 Forms Sales and Tonnage Converted 8
Percentage Change By Quarter, 1979 vs. 1978 9
Materials Cost Rises 10
Percentage Change By Month, 1979 vs. 1978 10-11
Real vs. Price Gains 12
1979 Sales By Market Channel 13
Selected 1979 Operating Ratios 14
Ranges in Capacity Utilization 15
1979 Operating Conditions 16
Sales, Profits and Capacity Usage 17
Total Forms Shipments, 1971-1979 19
Share of Market By Product, 1977 & 1978 20
Value of Production 22
Inputs and Outputs 23
Monthly Forms Sales, 1971-1979 25-28
Foreign Trade as Percentage of GNP 30
The IBFI Economic Forecast 33
1980 Monthly Sales Forecast 35
The Market in 1980 36
Continuous Forms As A Percentage of Shipments 39
Product Mix: 10 Years of Incremental Change 40
Productivity/Cost 42
U.S. E.D.P. Spending 43
COM Recorders 44
Non-Impact Printers 45
Forms Management 47
Computer System Shipments 48
General-Purpose Computer Market 49
Terminal Printers Installed 51
Small Business Computer Market 53
Minicomputer Shipments 55
Minicomputer Market 56
U.S. General-Purpose Computer Use By Industry 57
Computers and Forms 58
Computer Market Summary 59
Forms and GNP 65-68
Seasonal Factors 71
Preliminary 1977 Census of Manufacturers 73-75

INTRODUCTION: WHY FORECAST?

After a decade of prosperity and double-digit growth in the Sixties, our industry and many others were affected by the mild recession of 1970-71. Recessions are rarely pleasant for the participants, but the psychological impact of this one was greatly increased by the fact that for many smaller forms companies, it was the first time they had seen their growth even slow down, to say nothing of an actual decline.

Of course, we now know that our industry and our economy were in for a much greater shock. That mild recession was followed by a spectacular boom, the dislocating effects of which were magnified by wage-price controls. Suddenly, in late 1973, just as businessmen were convincing themselves that business would go on booming "forever", came a crash that fully matched the boom. As the time-hallowed precepts of the so-called Keynesian economics finally proved unequal to their task, the recession became a depression, and was followed by a period of "stagflation" in which low growth and high inflation proved that they can indeed be bedfellows however strange it may seem.

Paradoxically, it is in this atmosphere of uncertainty if not fear that business forecasting has boomed. Indeed, as a profession it follows a business cycle that is almost the mirror reverse of the more traditional one experienced by our own industry and most of the rest of the economy. When times are good and business is growing, few businessmen seem to have much time for forecasters or analysts. But come times of uncertainty and sluggish demand, and suddenly nearly every businessman wants to know a good forecaster.

Currently, our industry is coming out of one of the best 12-month periods in its history. Nonetheless, that period has simultaneously been one of the most confused and uncertain ones in the industry's history. Nor is relief immediately in sight. All the evidence suggests that the dynamic forces driving our industry are currently in a state of flux, and even the best forecaster can only suggest the directions in which events might take us.

Given this fairly cautious approach - a frank appraisal, if you will, of the human fallibility of the forecaster - it is not the purpose of this publication to enter into an enormously detailed, blow-by-blow account of IBFI's forecasting models and techniques. Nor will the reader find dollar figures calculated to the *nth* decimal and couched in language that suggests the predictions contained herein should be carved in stone. Instead, it is intended that this edition should describe the major components of IBFI's ongoing forecasts and present the main findings of our most recent forecasts as lucidly as possible.

WHAT SHOULD YOU LOOK FOR IN A "GOOD" FORECAST?

If this question were to be asked of the average person, that person would most likely reply to the effect that such a forecast would be a precise statement about the future which events subsequently prove to have been highly accurate. This position perhaps has some merit as the statement of an ideal, but it is important to remember that ideals, while worth striving for, are by definition rarely attained. That *caveat* is of particular importance when applied to a function such as forecasting, in which the timing of events is of at least equal importance to the magnitude of those events. If a forecaster gets both of those variables absolutely accurately, that achievement will contain at least as much luck as skill.

The small likelihood of its realization is not the only flaw in this definition. What is more to the point is that as it stands, the definition ignores the actual *usefulness* of the forecast. A more practical definition of a good forecast would be that it is one which, if followed, leads to the right business decision being taken. As such, the forecast need only point industry decision-makers in the right direction. The forecast in last year's edition of *Perspective,* for example, underestimated the magnitude of the real growth which was to occur in 1979. However, it was substantially correct in predicting that 1979 would be a year of significant real growth, easing profit margins, and general expansion within the industry. So those who followed the general advice implicitly contained within that forecast were better prepared for the year's events than those who did not. In that sense, absolute accuracy as to the size of swings in the industry is a refinement of the basic forecast - but that forecast really need be only as precise as the industry's decision-making processes require.

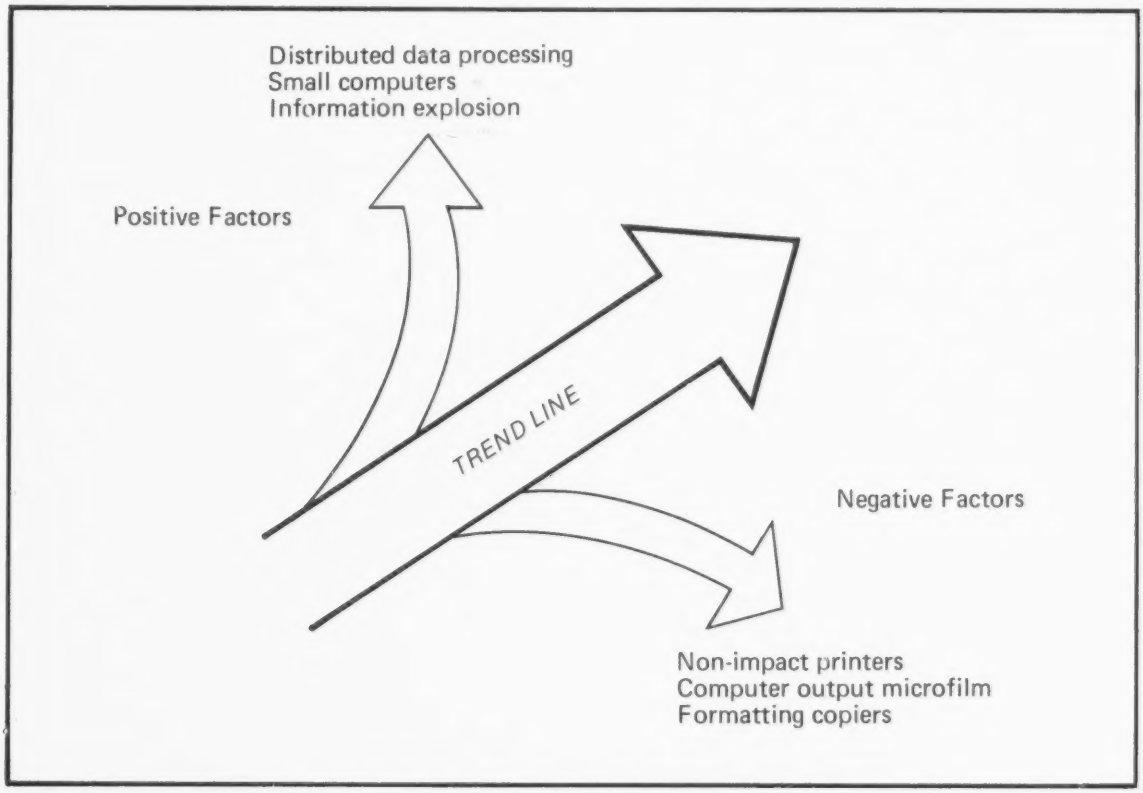
So the main ingredient of a good forecast is that it lead decision-makers in the right direction. IBFI is confident that this forecast and its previous incarnations do and have succeeded in that respect:

IBFI FORECASTS VS. REPORTED RESULTS
1973 - 1979

(all figures are "real" % change year-to-year at shipment value)

	Forecast	Actual
1973	+10.0%	+ 8.1%
1974	+ 8.0%	+ 6.0%
1975	- 4.0%	- 1.4%
1976	+ 9.4%	+ 9.7%
1977	+ 9.0%	+ 8.5%
1978	+ 7.0%	+ 7.0%
1979	+ 6.9%	+14.0%

There are, however, at least two other ingredients to a "good" forecast. First, it should not confine itself to mathematical models, trend analysis, and other purely statistical techniques. It must also include data from the market place. Statistical analysis of the industry's past behavior is extremely useful. However, by extending that analysis into the future, all that the forecaster is accomplishing is demonstrating what would happen *if nothing changed.* Since for better or worse, that is never the case in the real world, such forecasting would be of little or no use to businessmen. Indeed, the important function of the forecaster is to predict the deviations from what is called the trend line. It is, after all, these departures from what might be called the normal course of events that are of most interest to management. What is required for the prediction of these departures is a sound knowledge of the marketplace:



Finally, a good forecast must be objective. This statement may seem a truism, but in fact too many forecasts are deficient in this respect. On the one hand, if the forecast is made by people who are intimately involved with the day-to-day operations of their industry, it is difficult for them to stand back far enough to take a truly objective look at that industry. Their viewpoints will be too heavily influenced by their own firm's position in the market, their management's goals and opinions, and the reluctance of any sound businessman to predict a slowdown or actual decline in sales and profits. On the other hand, if it is an "official" forecast or part of a much broader forecast, the forecaster will be burdened with intellectual baggage that may be quite inappropriate to the particular matter at hand.

IBFI believes that one of its primary functions as a trade association is to provide an "outside" view prepared by someone who is familiar with the marketplace yet has no axes to grind. Furthermore, IBFI can serve as a confidential clearinghouse for information, ideas, and feedback. IBFI hopes and believes that *Perspective* has matured over the years into the most authoritative statement on the past, present and future of the North American forms industry. The reader is encouraged not just to read this report, but to use it and react to it.

EXECUTIVE SUMMARY

1979 Results

1979 SALES: 1979 turned out to be one of the strongest years in the forms industry's history - and this was despite dire predictions of recession. With dollar growth in the value of shipments measured at 22.2% over 1978 and real growth estimated at 13.1%, the industry substantially outperformed the forecasts of both IBFI and other analysts. At shipment value, industry receipts totalled $3.761 billion. Allowance for the mark-up added by dealer sales raised this figure in retail terms (i.e. end-user cost) to $4.056 billion.

1979 RATIOS: In past years, the industry has not always translated sales increases into improved bottom-line results. Happily, operating ratios for most firms in the industry showed marked improvement in 1979. With the exception of a seasonally weak third quarter, most firms giving input to IBFI's Quarterly Business Conditions Survey showed gross profits of 20-25% and pre-tax net of 7-10%. In fact, results were so good that IBFI's definition of profit leaders had to be temporarily revised upward, and these leaders reported gross margins of 27-31% with typical pre-tax nets of 15%. Furthermore, IBFI ratio data show no evidence that the industry as a whole suffered the erosion of productivity which is a source of so much complaint from other industries, and economic net worth and general debt positions did not show the improvement that the above figures might lead one to expect. However, this paradox is explained by the fact that favorable financial results and a new-found optimism in the industry's future led many firms to invest in new equipment. In fact, equipment manufacturers and suppliers reported record backlog levels, and desperate cries for "new iron" were heard from all quarters.

1980 EXPECTATIONS

1980 FORECAST: The value of the 1980 forecast has regrettably been somewhat cheapened by the failure of the oft-and fervently-predicted 1979 recession to materialize. In the forecast section of this report, it will be argued that the main components of 1979 economic events were correctly predicted. These were: a levelling off of economic growth due to the reaching of capacity limits on the supply side and spending limits on the demand side; a substantial increase in the level of inflation due to rising world commodity prices, severe pressure from the supply/demand imbalances that arise near the end of every modern expansionary period, and irresponsible government management of its fiscal and monetary policies; and additional pressure on the forms industry in particular from non-forms and less-forms technologies. *In fact, all of these predictions came true.* The problem is that the imbalances were so great that consumers decided to forget about savings and to spend while they still had the wherewithal to do so. Until very late in the year (November) the Federal Reserve supplied the cheap money with which this behavior could be financed, and the rate of personal savings dropped to an all-time low in American economic history. As for the forms industry in particular, this spending spree also resulted in more rapid installations of mini-computers and small business computers, and generated more transactions all around. Finally, the international political climate resulted in unexpected increases in defense and R&D spending, which add to the GNP in general and to the demand for computer output forms in particular.

There is an old saying that there is no such thing as a free lunch. So it is with economic performance. IBFI believes that this unexpected spurt which provided such a boost to the industry in 1979 will be paid for by slower-than-expected growth throughout the economy in 1980 and for 1 to 2 years beyond. However, recent evidence suggests that while sales of minis and SBCs may well slacken due to software bottlenecks, those machines are using a wider variety of forms and in greater quantities than was previously believed. Thus, after a relatively slow year in 1980, the forms industry is expected to recover more sharply in 1981 than the economy as a whole and will enjoy substantial real growth through 1984 (barring, of course, unforeseen events such as war).

The Market In 1980:

Forms shipments are expected to show real growth in dollar terms of 3.5% in 1980, as compared with 1979. Due to the uncertain economic situation - a situation made even more uncertain by the upcoming elections - no attempt has been made to factor inflation into the forecast. Readers are urged to make their own forecasts of price inflation when using the estimates for planning and analysis. *All forecast dollars in this report are based on dollar values as of December 31, 1979.* Therefore, because our estimates of real versus price gains in 1979 were an average of price gains that occurred throughout the year, the real gain from December 31 to December 31 will be about 4.1%. This translates to expected total forms shipments in December, 1980 of $3,914 billion.

Of course, this gain will not be spread evenly by product or by quarter. Continuous custom will be the industry leader - and it is expected that for the next few years this product will prove *relatively* immune to cyclical effects because of the increasing number of small-order customers to be found in this segment of the market. Continuous stock typically suffers more than other product categories during economic recession or stagnation. This trend will if anything be even more noticeable than usual in 1980. IBFI has reported in the past that more and more large users of computer output forms are switching to stock and near-stock forms. This trend seems to have accelerated in 1979. One result is that the stock product category contains more and more of those customers whose size and frequency of orders fluctuates in accordance with general economic trends. Unit sets will perform at approximately the industry average, while salesbooks will also underperform the industry as a whole. The product breakdown of the forecast is summarized below:

(Current $ Millions)

	1979	1980	% Change
Unit Sets	1,248.7	1,300.0	4.1%
Continuous Custom	1,466.9	1,547.6	5.5%
Continuous Stock	891.4	911.4	2.2%
Salesbooks	154.2	155.0	.5%
TOTAL	3,761.2	3,914.0	4.1%

Breaking the forecast out by quarter shows that the first quarter will start out rather strongly , but that by March sales will be softening noticeably. The second quarter will be fairly soft. All categories except custom are expected to show real declines during that quarter compared with the same period last year. Stock and salesbooks may even show current-dollar declines, albeit of a small magnitude. Offers of increased discounts and inability to stick to list prices will become commonplace during the second and third quarters. Some recovery, partially seasonal in nature, is expected in the fourth quarter.

1980 Sales Forecast By Quarter

	1	2	3	4	Total
1979	942.6	930.6	898.9	989.1	3,761.2
1980	1,026.6	916.9	915.6	1,054.9	3,914.0

1981 and Beyond:

In 1981 the economy is expected to remain fairly sluggish, with some improvement in the fourth quarter. This sluggishness will keep the forms industry to about 6% real growth as compared with 1980. In December, 1979 dollars, this increase will bring industry receipts at shipment values up to $4.150 billion. Again, continuous custom is expected to lead the industry, with unit sets performing at approximately industry average and stock performing rather below that average.

It is rather speculative to forecast for the years 1982-1984. However, other things being equal, the economy should have recovered - but not to the extent of the recent boom. The burgeoning small business computer and mini-computer market is expected to lead the industry to real growth of 8.5-9% during those years. These increases would bring industry receipts at shipment value up to $4.511 billion in 1982, up to $4.906 in 1983, and $5.335 in 1984. While continuous custom will continue to lead the industry, stock will also make a strong recovery during those years.

SELLING TO THE SBC AND MINI MARKETS will be the major challenge facing forms manufacturers during the next five years. A number of approaches have been suggested among them direct mail, increased sales through distributors, forms "stores", and the like. Ultimately, the marketplace will make the final decision.

NEW TECHNOLOGY: IBFI is continuing to track the impact of new technologies upon the forms market. As evidence accumulates, it becomes more and more apparent that the main impact of these technologies is loss of value added rather than actual displacement of forms. Nonetheless, such a loss should be of concern to manufacturers. Still - as the report below suggests in detail - new technology is continuing to provide the main opportunities for this industry as well as the main challenges. Against the non-forms and less-forms technologies that are continuing to develop (but rather more slowly than was originally predicted by proponents of such systems) must be weighed the benefit from the continuing spread of EDP through the economy.

REVISIONS OF MID-SEVENTIES INDUSTRY RESULTS: Another main objective of this report has been to update industry statistics for the last ten years. In this task IBFI was substantially helped by the release of the preliminary findings from the US government's 1977 Census of Manufactures. As a result of this research, industry analysts and executives will find two surprises. First, overall shipment values have been revised sharply upward. IBFI believes that the reason for our failure to predict these values accurately in the first place was the entry into the industry of many more new firms than anyone expected. Secondly, some of the trends which we have predicted in terms of product shares seem to have taken place more rapidly than we expected. The share of market held by continuous stock has been revised upward, while the increasing dominance of continuous forms as a whole has also been even more substantial than we originally believed.

SUMMARY OF INDUSTRY TRENDS: As the industry matures, it seems to be segmenting itself, with different parts going in different directions. At the top end of the market, we find a group of well-established firms which are showing all the signs expected of firms in a maturing industry. That means continuing mergers, acquisitions, and consolidations; conservative marketing strategies; and a slowdown of growth relative to the rest of the industry. The evidence suggests that the largest firms have generally lost market share over the last five years, and IBFI believes that this gradual erosion is going to continue. It is these firms, which still sell for the most part to "traditional" forms markets, that will feel most sharply the effects of non-forms and less-forms technologies - and the natural slow-down of the rate of growth (not to be confused with actual sales dollar declines) that results from saturation of those "traditional" markets. But at the bottom end of the market, there are still a lot of small firms entering this industry. The impetus for their doing so is the emergence of the small-business market, a service-oriented, less price-sensitive arena that is ideal for such firms. That end of the market will show dynamic growth over the next five years as those "lean and hungry" firms go for growth with a spirit that has in many cases been lost by the older "fat and happy" firms. But this new blood, combined with the growth pressures resulting from the higher cost of money, could well infuse the whole industry with a new spirit over the next five to ten years.

1979 RESULTS

REAL AND DOLLAR SALES GROWTH

Dollar Sales By Product and Quarter

1979 turned out to be one of the strongest years in the industry's history. The Confidential Sales Index showed a year-to-date dollar sales volume increase of 24.0% as compared with 1978. In the first quarter, the increase was even greater in percentage terms. Of course, IBFI does not rely solely on the Sales Index. While it has been developed during the last 9 years into an extremely useful barometer of industry activity, IBFI correlates it for the purposes of our annual estimates, with the larger Computer and Business Equipment Manufacturers' Association (CBEMA) report, official estimates, the bi-monthly Prescott, Ball and Turben survey, the quarterly and annual reports of our industry's publicly owned companies, and the private estimates of other industry analysts. IBFI's estimate of 1979 sales is summarized below:

1979 RESULTS BY QUARTER

($ million, shipments values)

	1st	2nd	3rd	4th	Total
Unit Sets	291.0	326.5	305.7	325.5	1,248.7
Continuous Custom	392.0	344.4	347.2	383.3	1,466.9
Continuous Stock	221.5	219.5	211.5	238.9	891.4
Salesbooks	38.1	40.2	34.5	41.4	154.2
TOTAL	942.6	930.6	898.9	989.1	3,761.2

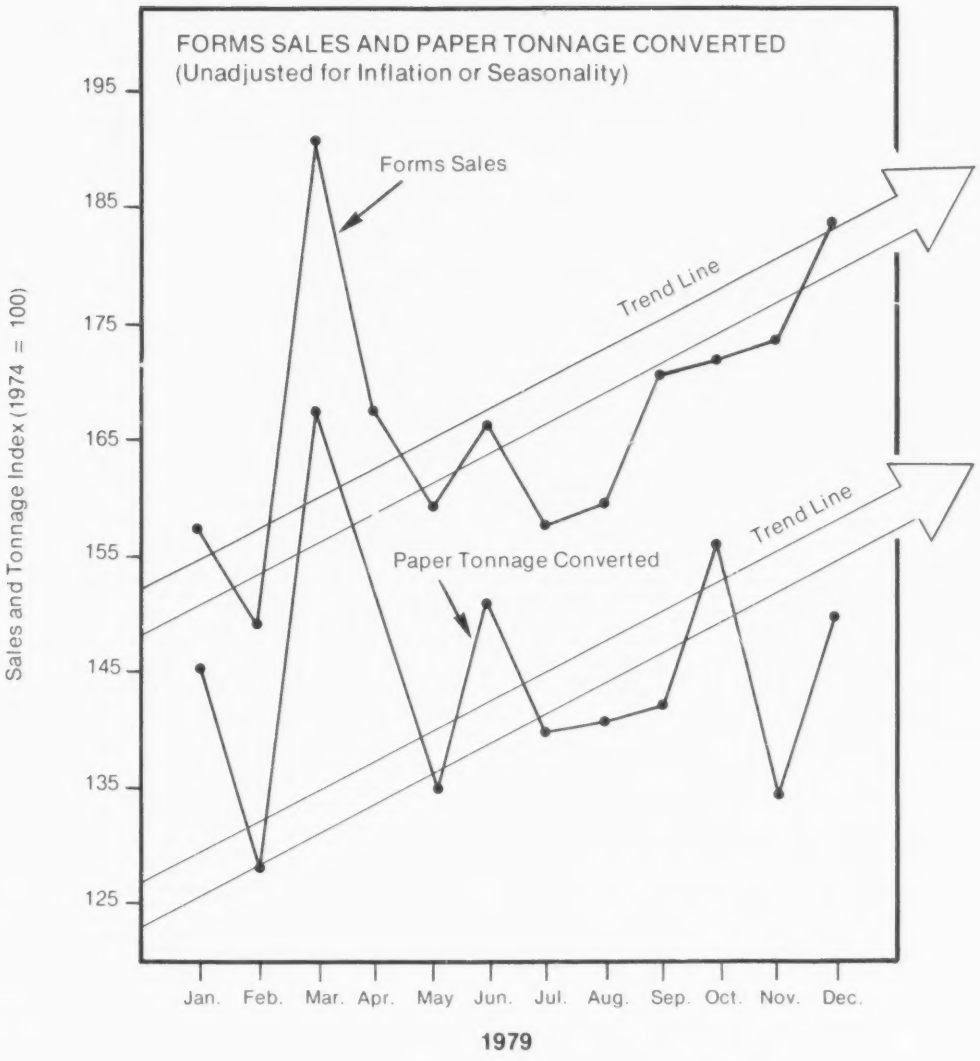
Growth Over Previous Years

As mentioned above, these figures represent substantial growth in sales volume as compared with recent years. With overall growth coming in at 22.2% over 1978, the different product categories showed markedly different rates of growth:

% CHANGE, 1979 VS. 1978

(current dollars, shipments values)

unit sets	+17.2%
continuous custom	+22.8%
continuous stock	+31.0%
salesbooks	+11.8%
TOTAL	+22.2%



Source: *IBFI Confidential Monthly Sales Index*

A comparison of quarterly results shows that growth was markedly stronger in the first half of 1979. Adjustments for inflation would make this factor even more pronounced.

% CHANGE 1979 VS. SAME QUARTER OF 1978

(current dollars, shipments values)

1st Quarter	+27.6%
2nd Quarter	+22.4%
3rd Quarter	+19.2%
4th Quarter	+19.9%

Real Growth vs. Price Gains

As the above sales data demonstrate, 1979 proved to be one of the strongest years in the industry's history. Of course, a substantial portion of this increase was due to price rises rather than greater volume shipped. It is of considerable importance to the planning function to separate out real and price gains. Unfortunately, this information is very hard to come by in an industry of so fragmented and competitive a nature. Even if one could track "list" increases - and there is in fact no mechanism for tracking forms prices - the effort would be stymied by the need to distinguish between intended price rises and those that do not "stick".

Therefore, as with so much market research, we must rely upon indirect "back door" techniques. As with other estimates published in this report, our estimates of price gains during 1979 rely upon a "basket" of techniques and sources rather than any single one. Even so, it must be admitted that our pricing estimates are, of all our estimates, most subject to minor errors.

Tonnage vs. Dollar Measures

Our most straightforward and most important tool for tracking "real" growth, or unit volume increases, is the IBFI index of paper tonnage converted or shipped. The raw data from this indicator suggested a 15.6% real or unit volume increase in 1979, with price adjustments accounting for the other 8.4% of $ increase. After adjustment for seasonal variation, net inventory changes, and irregularities in the statistical sample, these precentages are changed to 13.1% and 9.1% respectively. Of course, as the table below illustrates, these price adjustments were not spread perfectly evenly throughout the year. (The comparable data for 1978 are presented as well for the purposes of comparison).

This data is backed up by data provided by the American Paper Institute, which tracks mill shipments of forms bond. Again, the raw data must be substantially reworked. For one thing, mill shipments do not take into account any net changes in inventory at the converter level - and paper inventories were unusually volatile in 1979 according to both IBFI's Business Conditions Survey and other industry analysts. For another, there is a complex correlation between mill shipments and forms shipments which is not entirely understood and which may indeed be irregular. Finally, but perhaps most significantly, forms bond is not the only type of paper used by forms manufacturers. Indeed, 1979 saw unusually high growth in the use of specialty papers and considerable dipping into inventories, so the adjusted API figures are substantially higher than the raw data:

% CHANGE, 1979 VS. 1978

	$		Tons	
	month	y-t-d	month	y-t-d
J	26.9	-	22.9	-
F	26.5	26.7	10.4	16.7
M	32.1	27.6	15.7	16.3
A	22.6	27.1	21.1	16.9
M	25.2	26.7	10.0	16.1
J	21.0	25.7	15.9	16.0
J	22.9	25.3	21.4	16.7
A	20.9	24.8	18.7	17.0
S	18.1	24.0	14.8	16.7
O	18.6	23.4	18.9	17.0
N	20.9	23.1	10.9	16.4
D	13.3	22.2	7.4	15.6

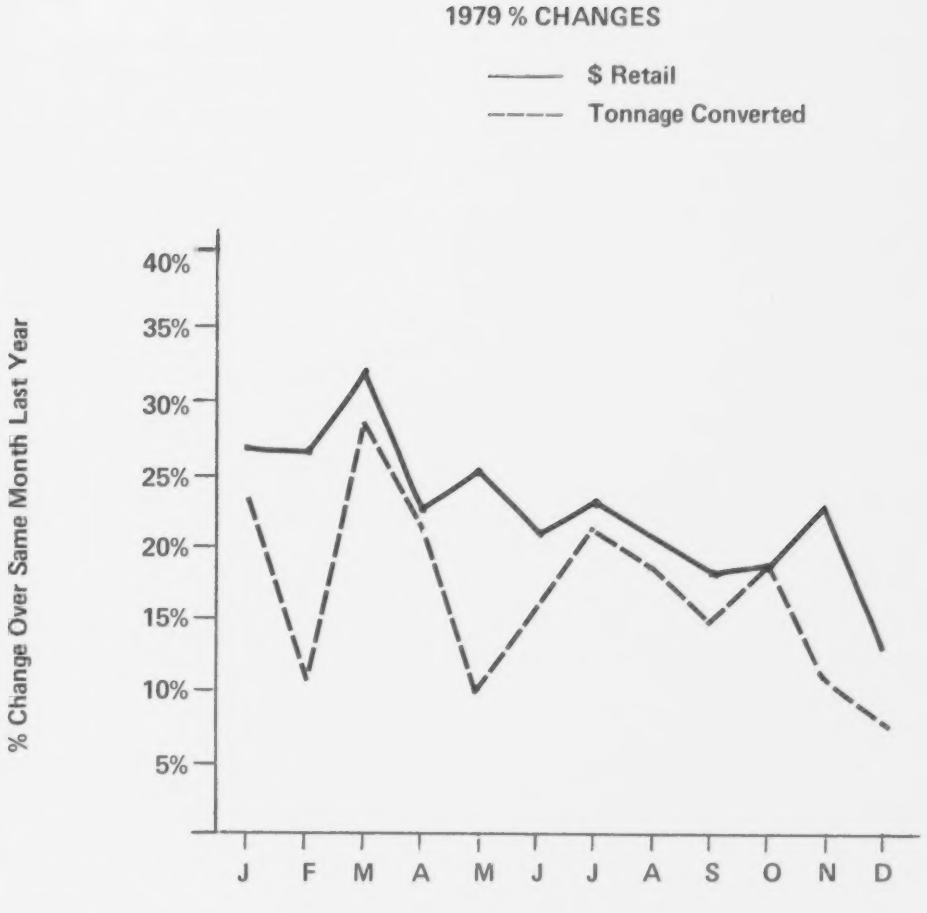
Materials Cost Indices

In any industry as competitive as the forms industry, the basic reason for rising prices is increases in the cost of production. Marketplace conditions only determine how much or how little of those cost increases can be passed on to consumers. So another technique for tracking forms costs is to track the costs of the different factors of production. The table below demonstrates the substantial increases in materials costs with which the industry had to cope in 1979.

PER CENT CHANGES, JAN. 1 - DEC. 31, 1979

Producer Price Index	+10.7%
Industrial Goods Price Index	+ 7.7%
Intermediate Goods for Manufacturers Price Index	+ 9.6%
12 lb. Forms Bond	+13.5%
15 lb. Forms Bond	+14.7%
Hourly Rate for Forms Production Workers	+ 7.5%

1979 % CHANGES



Source: IBFI

CONCLUSION

Overall

In light of what has gone before, the conclusion from these three sections can be mercifully brief: after adjustment for seasonal variations, short-term fluctuations, and the annualizing of the various price changes that occurred throughout the year, price gains account for 41.67% of the total growth in dollar volume. Put another way, we can see that of the 22% dollar growth, 13% was real, or unit growth and 9% was price increases:

1979 RESULTS:
REAL VERSUS PRICE GAINS BY QUARTER

Current $ Millions, Shipment Value

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	TOTAL
Shipments	942.6	930.6	898.9	989.1	3,761.2
Increase Over Previous Year	203.9	170.3	144.7	164.2	683.1
Price Gains	56.1	67.0	73.9	82.9	279.9
Real Gains, $	147.8	103.3	70.8	81.3	403.2
Real Gains, %	20.0%	13.6%	9.4%	9.9%	13.1%

These price increases were not spread uniformly across the industry's product range:

1979 RESULTS:
REAL VS. PRICE GAINS BY PRODUCT:

	1979:	$ GAIN:	PRICE:	REAL:	% REAL:
Unit Sets	1,248.7	183.6	97.3	86.3	8.1%
Continuous Custom	1,466.9	272.1	84.4	187.7	15.7%
Continuous Stock	891.4	211.1	75.1	136.0	20.0%
Salesbooks	154.2	16.3	23.1	-(6.8)	-(4.9)%
TOTAL	3,761.2	683.1	279.9	403.2	13.1%

Measured at shipment value, over a quarter of all the forms shipped in 1979 were sold to the final consumer by an independent distributor. Since most of the industry's largest firms sell direct, it is obvious that a considerable percentage of the orders filled by the smaller firms go through these distributors, of which there are as many as 2,000 nationwide (counting only full-time forms distributors). Manufacturers oriented to this need to have their own sales forces (of course, there are disadvantages as well). However, this cost advantage is ultimately reflected in the *markup* charged by the distributors in passing the finished goods on to he final customer. Therefore it is necessary to increase the value of the shipments to dealers if one is to obtain a true picture of the size of the US forms industry.

1979 SALES BY MARKET CHANNEL

(Current $ Millions)

	Direct	Dealer	Dealer Mark-Up	Total Retail Value
Unit Sets	845.1	403.6	121.1	1,369.8
Continuous Custom	1,118.3	348.6	139.4	1,606.3
Continuous Stock	738.3	153.1	15.3	906.7
Salesbooks	76.6	77.6	19.4	173.6
Total	2,778.3	982.9	295.2	4,056.4

	SHIPMENTS VALUES		RETAIL VALUE	
	Direct	Dealer	Direct	Dealer
Unit Sets	67.7%	32.3%	61.7%	38.3%
Continuous Custom	76.2%	23.8%	69.6%	30.4%
Continuous Stock	82.8%	17.2%	81.4%	18.6%
Salesbooks	49.7%	50.3%	44.1%	55.9%
TOTAL	73.9%	26.1%	68.5%	31.5%

OPERATING RATIOS

1979 was a good year for the industry in terms of the bottom line as well as in terms of unit and dollar shipments. This should be welcome news, because in the past strong increases in shipments have not always been associated with greater profits. At times increases in net capacity have resulted in competitive pressures which caused margin squeezes despite strong sales. During the late Sixties and at the turn of the last decade, for example, the industry had to swallow many cost increases and rely for its profits on productivity improvements that too often were more apparent than real. As recently as 1978, the industry's net earnings failed to reflect adequately the strength of the market.

Financial Results

The table below demonstrates that gross margins and pre-tax nets were very healthy. Backlogs have been well above average. Inventories of raw materials proved surprisingly stable despite problems caused by the west coast paper strike.

The dip in the third quarter is a seasonal phenomenon.

	1978	1979			
	4th	1st	2nd	3rd	4th
Gross Profit	24%	25%	24%	20%	25%
Net Pre-Tax Profit	8%	10%	9%	4%	8%
Return On Investment	16%	17%	15%	9%	14%
Sales Outstanding (Days)	44	41	43	34	44
Raw Material Inventories (Days of Production)	64	56	58	43	62

Source: IBFI's *Confidential Business Conditions Survey.*

OPERATING CONDITIONS

The table below shows that median capacity utilization remained fairly high throughout 1979; the third-quarter slump can be explained by seasonal factors. Larger firms generally operated at higher utilization rates, as did those specializing in stock forms. The smallest firms typically operated at levels below the industry median, as did firms which failed to specialize in their product line or distribution channel.

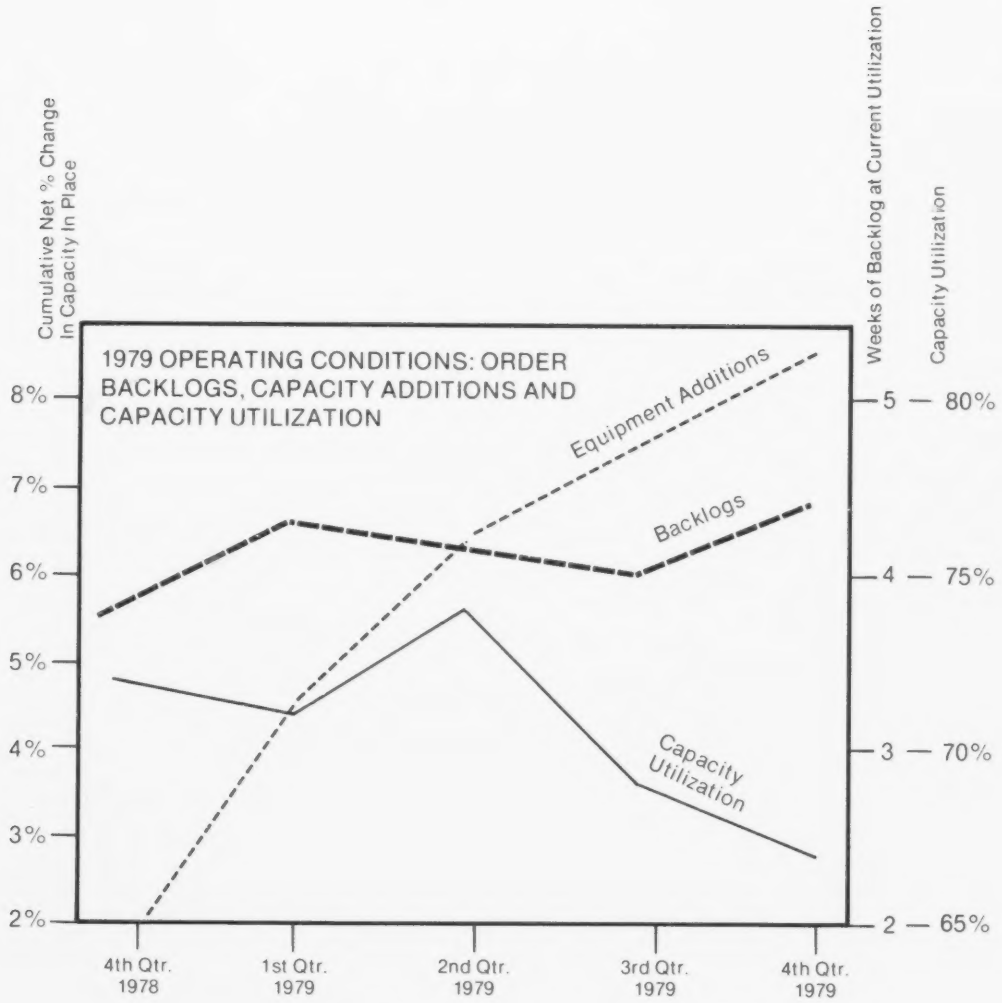
	1978	1979			
	4th	1st	2nd	3rd	4th
Current Capacity Utilization	72%	71%	74%	69%	67%
Net % Change, Capacity In Place	2.5%	3.5%	3.1%	2.3%	1.8%
Weeks Of Backlog At Actual Capacity Utilization	3.8	4.3	4.2	4.2	4.3

Ranges In Capacity Utilization

	1978	1979			
	4th	1st	2nd	3rd	4th
50% or less	9%	11%	13%	18%	12%
51-70%	34%	34%	37%	43%	61%
71-90%	36%	48%	39%	30%	23%
91-100%	21%	7%	11%	9%	4%

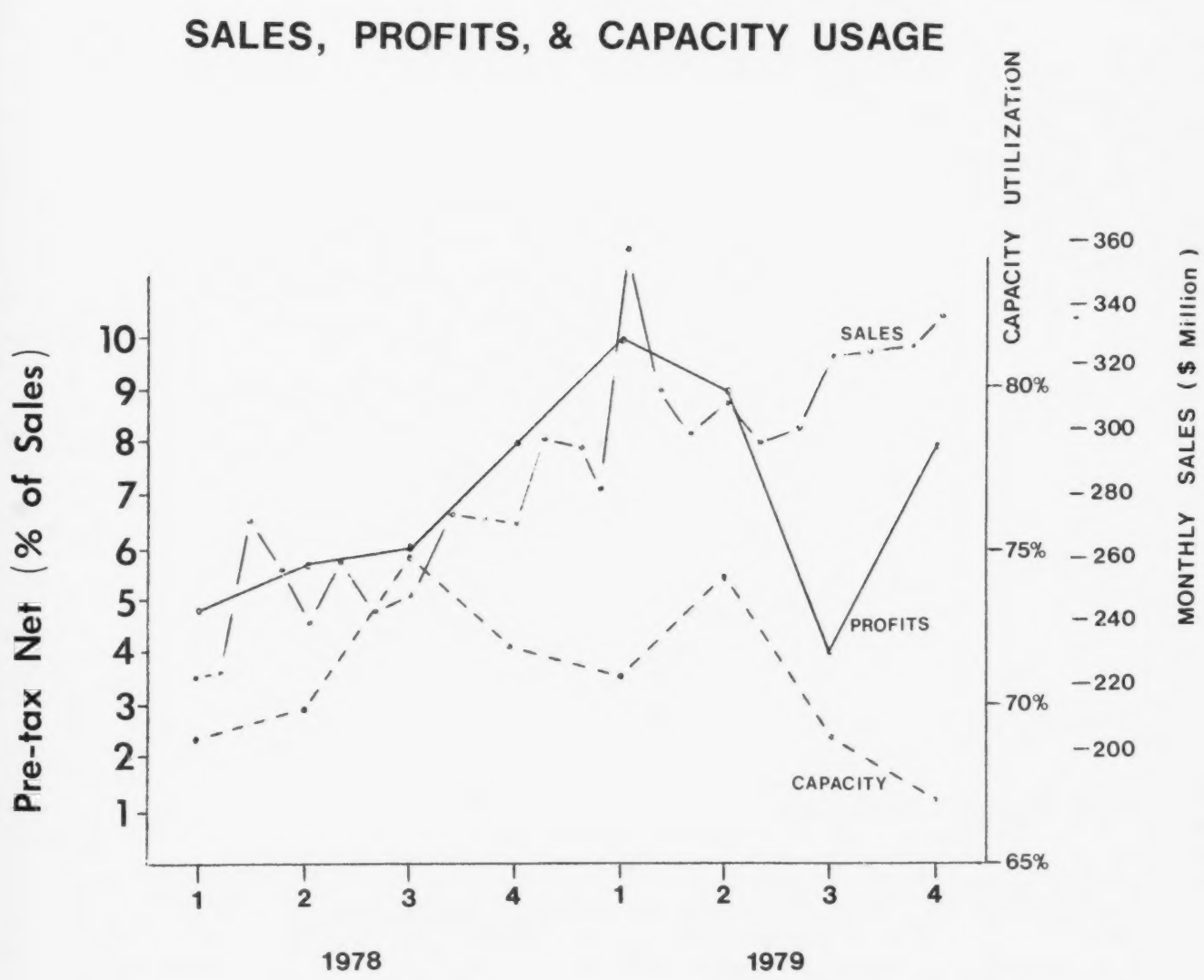
Source: *Business Conditions Survey.* Capacity is standardized at 120 press hours per week = 100% utilization.

In a broader sense these statistics also point out one of the fundamental dynamics of the forms industry. *Even in years of greatest demand the industry has 25% - 30% excess capacity.* True, part of this abundance of equipment can be explained by a reluctance to retire old presses. Many firms have various pieces of equipment which, while technically obsolete, have long ago been fully depreciated and are useful for certain jobs. Even so, most industries expect capacity utilization rates in the high eighties to low nineties when markets are as strong as ours was during 1979. In fact, the slight deterioration in capacity rates which occurred despite a strong demand for forms was due largely to substantial increases in capacity in place. In other words, the industry was busily installing new presses even faster than the level of orders was increasing! IBFI estimates that there were some 315 net additions to the US population of forms presses during 1979. The following demonstrates this anomaly by correlating order backlogs, changes in capacity utilization, and net changes in capacity in place.



Capacity Utilization: 120 hours per week per press = 100%

And below, we correlate some of the capacity statistics with sales and margins:



SOURCE: IBFI

UPDATING THE DECADE'S RESULTS

Why Revise?

The 12 months of 1979 witnessed three events which made it advisable if not necesssary to revise some of IBFI's estimates of total forms sales and product breakdowns. Two of these events were normal occurrences in the life of any ongoing research program, namely the end of a decade and the arrival of a new director of research. While relatively unimportant in and of themselves, such milestones present an opportune excuse for a retrospective exercise which should in any event be carried out at periodic intervals.

The third event was considerably more concrete and of much greater importance to the affairs of our industry and our association. In early September 1979, the US Bureau of the Census issued the preliminary report on the manifold business forms section of the 1977 Census of Manufactures. This report contained surprises for virtually every professional analyst covering the forms industry, including the analyses prepared by both IBFI and the US Government's Bureau of Economic Analysis in the Department of Commerce.

The '77 Census of Manufactures

As a service to readers, this preliminary census report has been reprinted as an appendix to this publication. Interested readers therefore can examine the report's findings for themselves as well as reviewing IBFI's analysis. However, the main surprises are easily summarized:

1. *Industry Size Underestimated:* The census findings pegged total shipments of business forms at $2.721 billion in 1977. This figure contrasts sharply with IBFI's estimate for 1977 of $2.51 billion at shipment value - an estimate which we know to have been low by 8.4%.[1]

2. *Share-of-Market By Product Distorted:* The census indicates that unit sets have lost market share more rapidly than IBFI indicated, while continuous stock has grown more than was expected. Meanwhile, sales & other manifold books, and pegboard accounting systems have retained market share, in dollar value if not unit terms, much more stubbornly than anyone anticipated.

We're Not Alone

IBFI's research staff were not the only ones who were caught flat-footed by some of this new information. Other private analysts, including well-known names such as Frost and Sullivan, the Battelle Memorial Institute, and Prescott, Ball, and Turben made the same mistake. Many marketing specialists working for various firms in the forms and related industries were caught out as well. Even more interestingly the US Government itself produced numbers even less accurate than IBFI's. In 1978, the Bureau of Domestic Commerce underestimated 1977 forms shipments by 5%; in 1979, the Annual Census of Manufactures (an estimate not to be confused with the full quinquennial census) produced a figure that was $250 million on the low side. In fact, IBFI has at least been among the first to revise its data.

[1]The $2.51 billion fig. is taken from *Perspective* 1978. In the 1979 edition of *Perspective*, the estimate was lowered still further to $2.49 billion.

What Went Wrong?

A number of unusual factors contributed to the substantial and widespread errors which can be found in estimates of 1977 forms shipments. However, the greatest part of the errors can be explained by three factors:

1. *More New Plants:* Both official and private sources underestimated the expansion of the industry's operating capacity. The number of plants grew from 667 in 1972 to 794 in 1977. This addition of 127 plants represents an increase of 19% over the 5-year period. Furthermore, the data make clear that many already-established plants underwent capacity expansion. While the total population of forms plants increased by 127, the number of plants employing more than 20 production workers increased by 101, from 376 to 477.

2. *A Robust Economy:* During the last 24 months, the U.S. economy has outperformed the predictions of all analysts, both public and private, official and unofficial. The effects of this unexpected vigor on forms shipments are self-evident.

3. *The Mini Market:* It would be inaccurate to say that mini and small business computers have achieved greater market penetration than was predicted. However, these machines are individually using more forms than was expected. (Nor is this the first time that IBFI has had to increase its estimates of total forms usage per mini or SBC).

On top of these major contributory factors, it is no accident that these estimating problems occurred immediately after the confused 1975-76 period. All sampling techniques depend ultimately for their reliability upon the accuracy of the base figure from which the projections are made. The base data for 1975 and 1976 remains somewhat hazy even after 4 years of argument, counter-argument, and soul-searching. At the time that estimates of 1977 shipments were being made, it was even less apparent to what extent the '75 and '76 figures could be relied upon, or in what specific areas they might be flawed. This uncertainty contributed further to the inaccuracies ultimately found in the estimates of 1977 sales.

A New Set of Data

Total Forms Shipments

The IBFI research department has invested months of time and effort into analyzing and updating industry statistics for recent years. The results of this investigation are presented in considerable detail in appendices and in other sections of this report. The extent of the changes resulting from this re-examination is summarized below:

Year:	(Dollars Millions) Previous IBFI Estimate:	(Dollars Millions) Current IBFI Estimate:
1971	1,242.3	same
1972	1,381.9	same
1973	1,648.7	1,705.8
1974	2,139.2	2,253.3
1975	2,038.0	2,218.5
1976	2,228.0	2,425.3
1977	2,493.0	2,721.2
1978	2,820.0	3,078.1

Share of Market By Product

Our revisions were not confined to total forms shipments by dollar value. (In fact, these revisions have impacted several facets of our economic and market analyses. All such changes and their implications are discussed in other sections). Some recent estimates of product breakdowns have also been updated:

Year:	($ million) Previous IBFI Estimate:	($ million) Current IBFI Estimate:
1977	Unit Sets - $ 865 - 34.7%	$ 958.1 - 35.2%
	Cont. Cust. - $1,105 - 44.3%	$1,024.0 - 37.8%
	Cont. Stock - $ 440 - 17.6%	$ 609.9 - 22.4%
	Salesbooks - $ 83 - 3.4%	$ 129.2 - 4.7%
1978	Unit Sets - $ 970 - 34.4%	$1,065.1 - 34.6%
	Cont. Cust. - $1,265 - 44.9%	$1,194.8 - 38.8%
	Cont. Stock - $ 500 - 17.7%	$ 680.3 - 22.1%
	Salesbooks - $ 85 - 3.0%	$ 137.9 - 4.4%

THE IBFI FORECAST

The Decade In Perspective

I have repeatedly stated in public presentations to groups of forms manufacturers and dealers that our understanding of the future can never be greater than our understanding of the past. Of course, I have pointed out just as often that this view does *not* mean that history repeats itself, either in the forms industry or in any other field of human endeavor. On the contrary, *change* is the greatest *constant* in our world. But that change, be it non-impact printers, shifting international alliances, or the price of eggs, never takes place in a vacuum. Instead, it takes place as a result of what has gone down before. Too often, one only spots the cause-and-effect relationships after the fact with that special clarity of hindsight. Nonetheless, the better one understands the past, the better one can deal with the present and predict the future. For this reason, one of my first self-imposed tasks in my capacity as IBFI's new research director was to put together a coherent picture of our industry's history. Furthermore, I wish to present that picture to the readership as an aid to understanding the forecasts which follow.

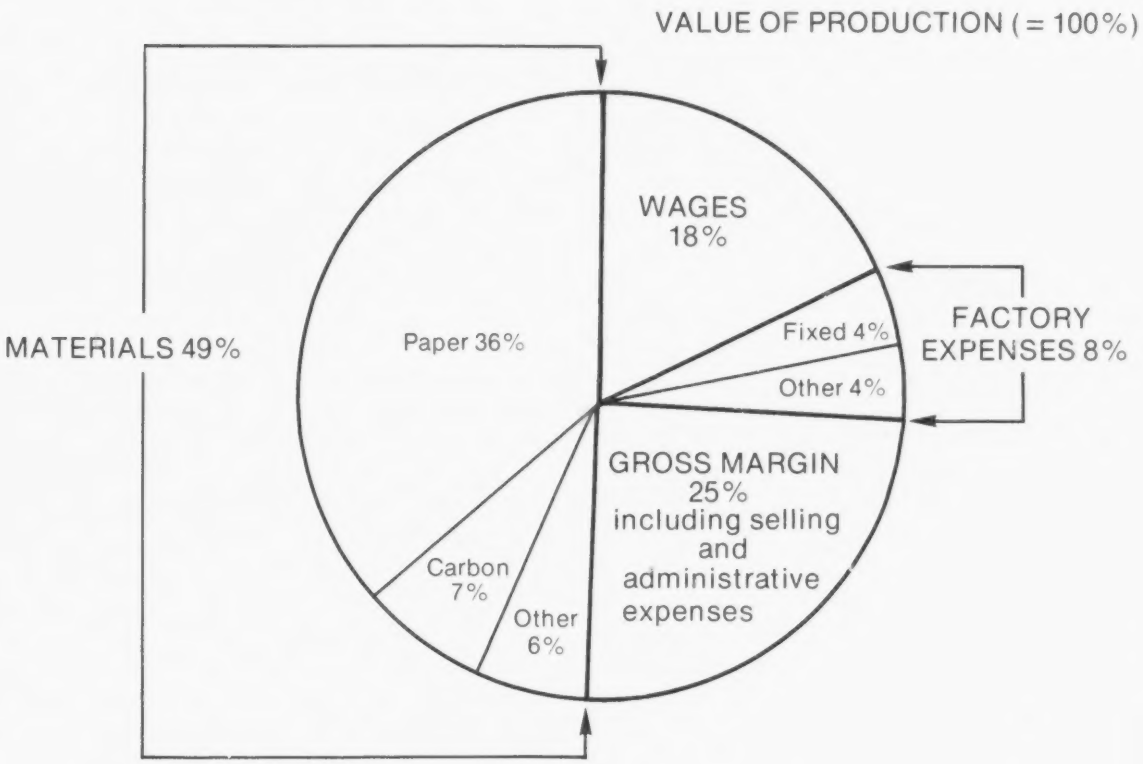
A Time of Turbulence

The forms industry has traditionally relied upon trends in the electronic data processing (EDP) field for its long-term growth. So far, it has been lucky. The first thing we must remember is that our worst troubles pale in comparison with those of many more traditional industries, e.g. automobiles, steel, etc. Secondly, real growth in our industry has been substantially in excess of real growth throughout the economy as a whole. The thrust of IBFI's forecast is that both these conditions will hold true throughout the remainder of this century. Beyond that turning point, forms manufacturers will face increasing competition from non-paper and non-forms technologies.

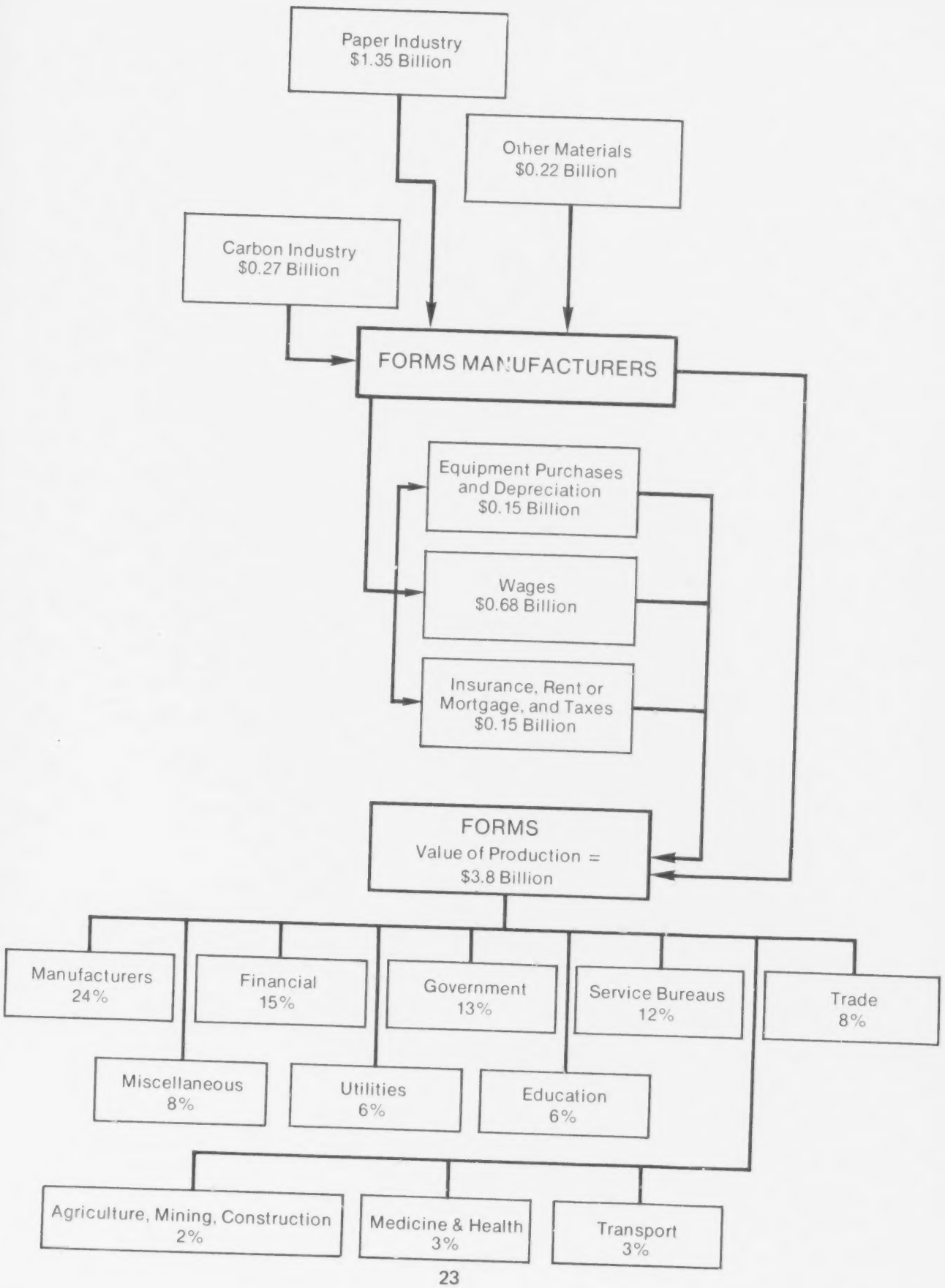
The Industry: An Input-Output Model

In the most general terms, every industry is the same. An entrepreneur combines factors of production to manufacture a product. The difference between the cost of those factors of production and the selling price of the finished goods is called the value added, and after deducting certain items we arrive at the gross profit margin. Deduct a few more items and we get the pre-tax net. Schematically, the whole business looks something like the following pie diagram.

Of course, financial ratios are a complex topic to which entire studies can be profitably devoted.* But the diagram below will show the main inputs used by the forms industry.



* IBFI prepares an annual *Ratio Study* for forms manufacturers.

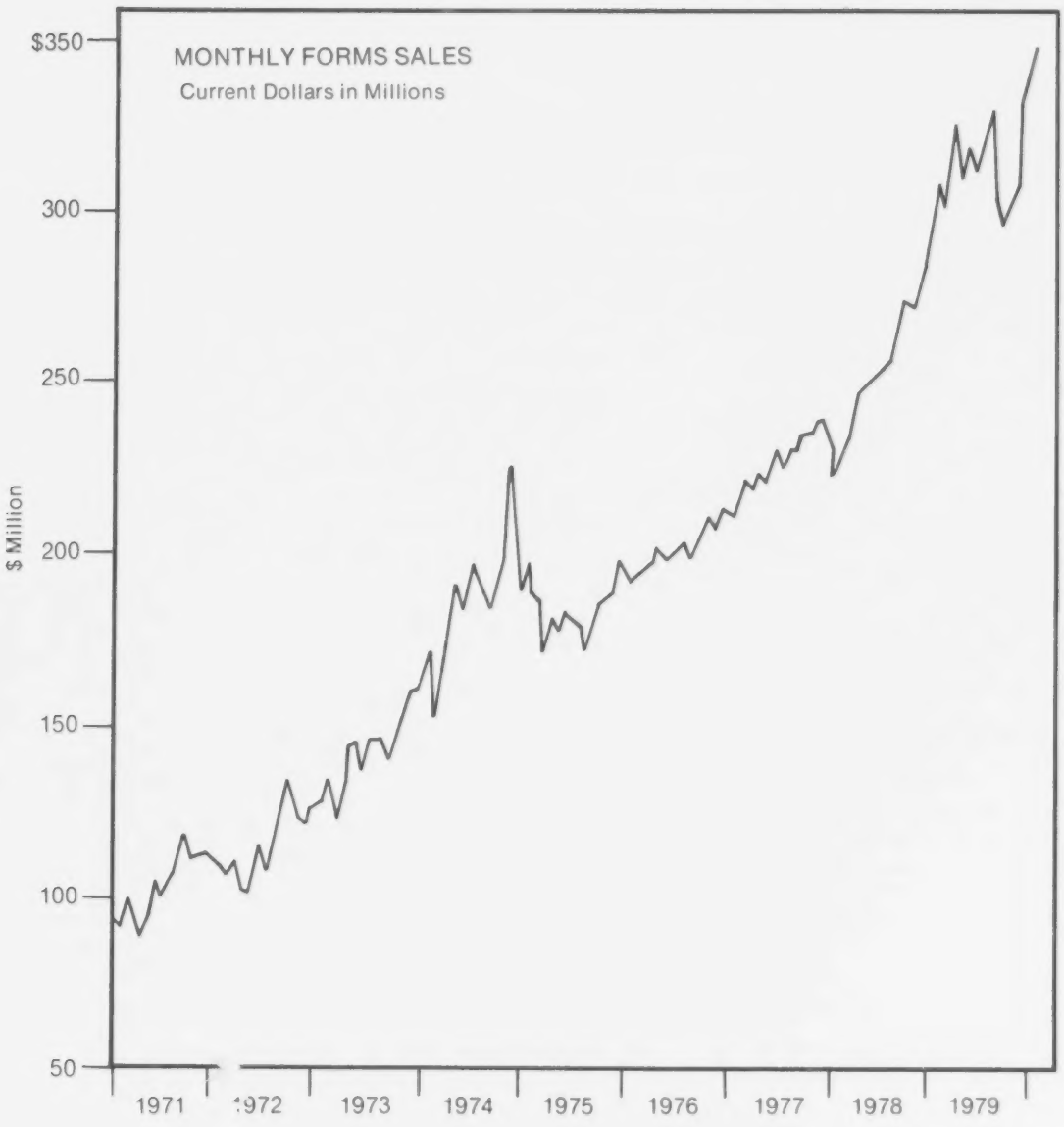

Paper Industry
$1.35 Billion
Other Materials
$0.22 Billion
Carbon Industry
$0.27 Billion
FORMS MANUFACTURERS
Equipment Purchases and Depreciation
$0.15 Billion
Wages
$0.68 Billion
Insurance, Rent or Mortgage, and Taxes
$0.15 Billion
FORMS
Value of Production =
$3.8 Billion
Manufacturers
24%
Financial
15%
Government
13%
Service Bureaus
12%
Trade
8%
Miscellaneous
8%
Utilities
6%
Education
6%
Agriculture, Mining, Construction
2%
Medicine & Health
3%
Transport
3%

SALES PATTERNS DURING THE SEVENTIES

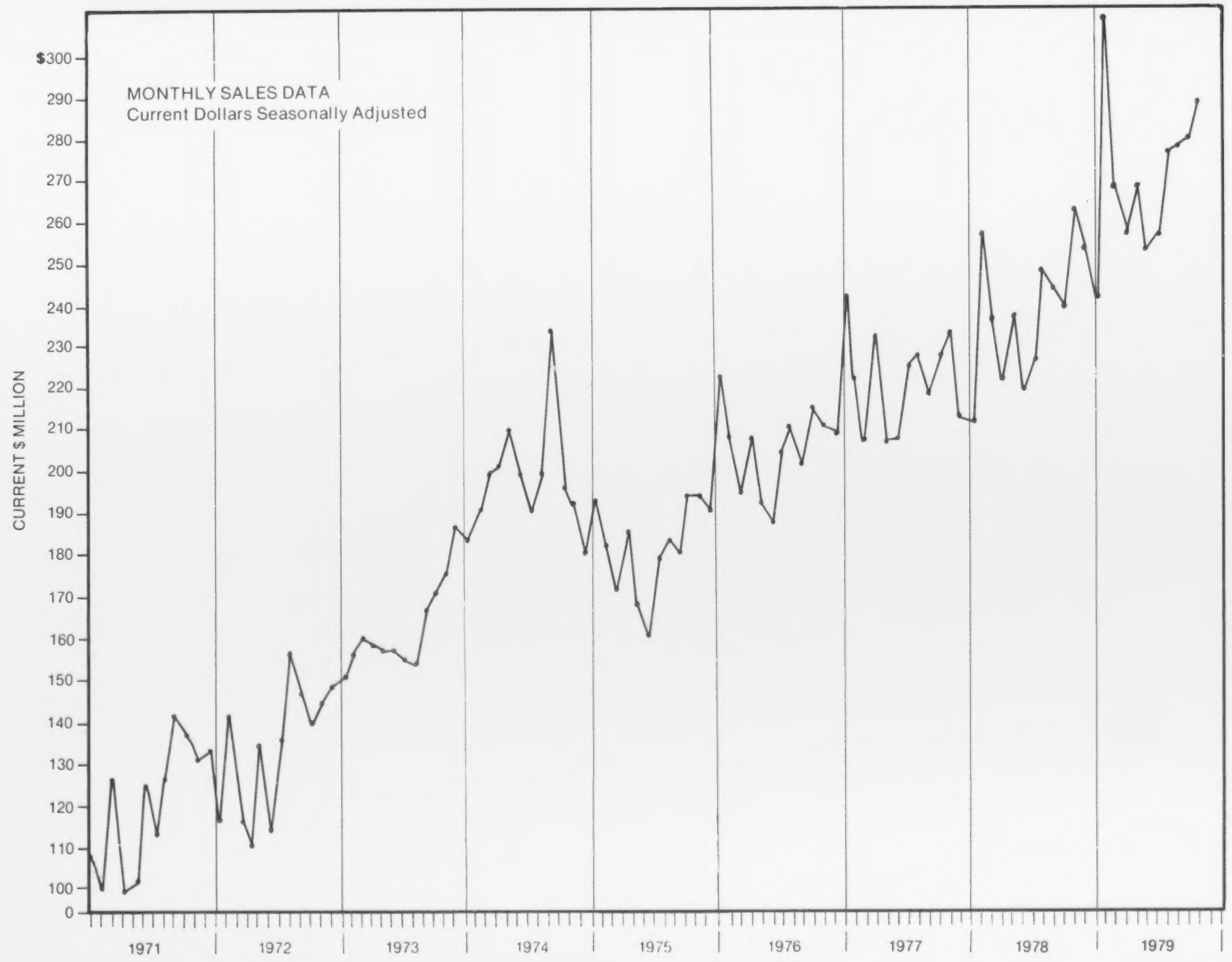
Forms sales have been relatively buoyant during the past decade. This buoyancy has been especially welcome in light of the very mixed performance turned in by the economy as a whole. *IBFI expects the forms industry to continue to outperform the economy through the mid-eighties at least.*

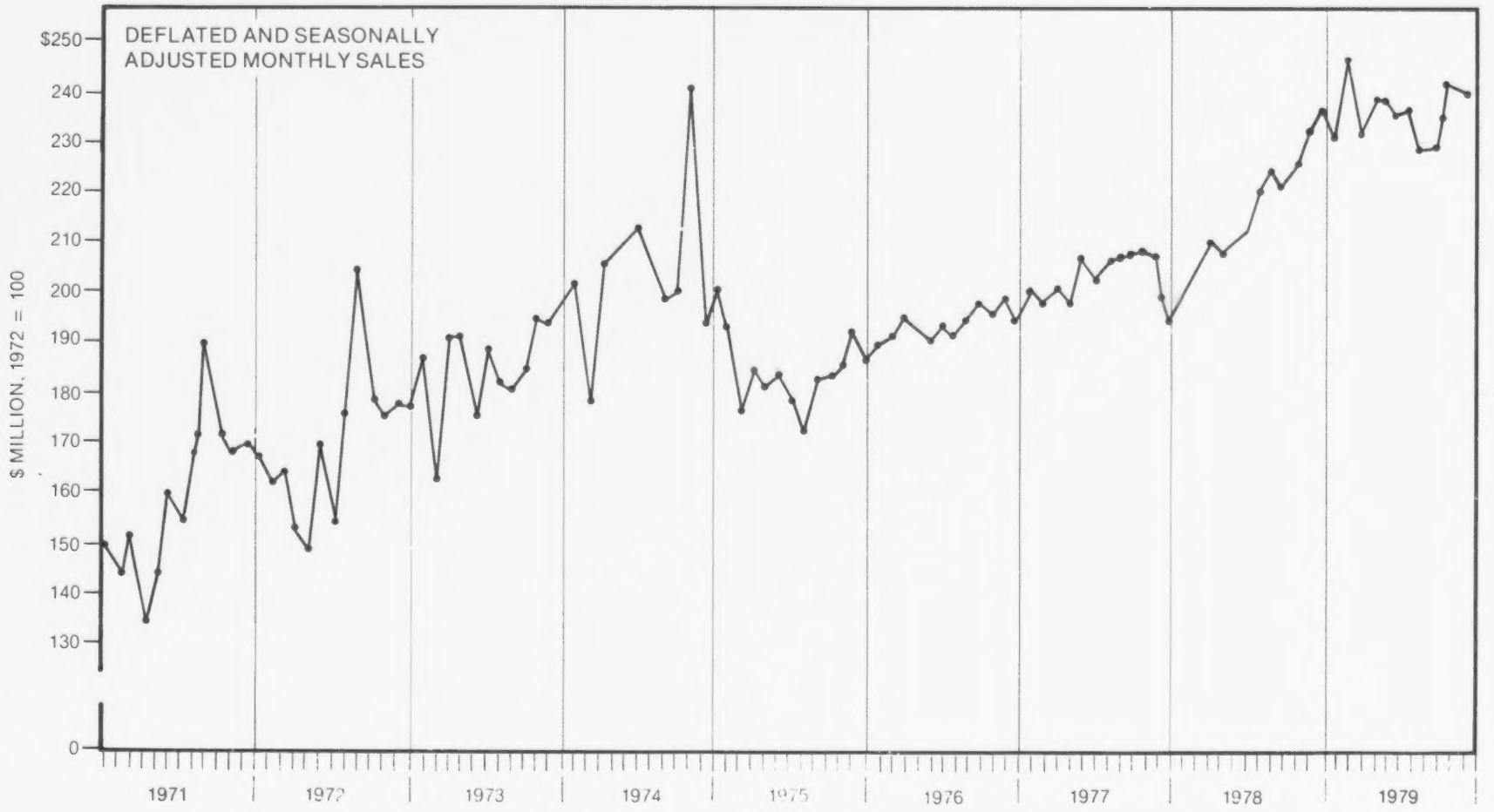
However, this optimism does not mean that sales will always increase in real terms. IBFI's study of ten years of monthly sales data convincingly shows marked periods of growth, often very rapid, separated by plateaus representing periods of consolidation. If this trend continues, the industry is currently emerging from a period of high growth and therefore 1980 and 1981 will be a period of relatively stable sales levels. *In terms of sales dollars, the record shows that even during this consolidation, the industry will continue to post modest real gains.* However, patterns of equipment purchase and modernization will mean pressure on gross and net margins even though sales continue to increase. These pressures should ease by mid-1981. The 1982-84 period will yield significantly higher growth rates, and during that three-year period manufacturers should expect a spurt of double-digit percentage growth lasting twelve to eighteen months.

In the following 4-page section of graphic analysis, IBFI presents the research which lies behind this trend analysis.



aph presents the raw data modified for extremes, used in this trend analysis.
llowing graphs this data is first seasonally adjusted, then deflated, and finally smoothed into a set of curves.


MONTHLY SALES DATA
Current Dollars Seasonally Adjusted
CURRENT $ MILLION
$300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
0
1971
1972
1973
1974
1975
1976
1977
1978
1979


DEFLATED AND SEASONALLY
ADJUSTED MONTHLY SALES
$ MILLION, 1972 = 100
$250
240
230
220
210
200
190
180
170
160
150
140
130
0
1971
1972
1973
1974
1975
1976
1977
1978
1979

MONTHLY SALES TREND LINE
Adjusted For Extremes, 1971-79
CURRENT $ MILLION
$300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
0
1971
1972
1973
1974
1975
1976
1977
1978
1979

THE ECONOMIC CLIMATE

A Welcome Boom

During the last 12 months, the economy has been a nightmare for forecasters, but a boon for nearly everyone else. We have witnessed in that period:

- The sharpest and most sustained boom in post-war economic history
- Record levels of employment
- Record profits in many industries

Mixed Signals

The economy is still sending out mixed signals. In the words of one forecaster, "Economic history will record 1979 as a year of surprises, contradictions and mixed signals." However, the broad trends are still fairly clear:

- We are in a recession
- It is and will be a fairly mild one
- We will be in recovery by mid-year of 1981 at the latest, but the recovery will also be mild
- Inflation will remain at excessive levels

An Economics Lesson

Why are many economists confused and even demoralized? Economics is a human science. Its inner workings are as complex as the society in which we live - and those workings are not mechanical. Instead, they depend upon the individual behavior of millions of individuals.

Taken together, those individual actions are usually consistent - and therefore predictable. But the economy is currently undergoing fundamental change. In the broadest sense, economies mature (and age) just as do industries. Many researchers would argue that the US was not a fully developed industrial economy until W. W. II, and that we are now entering a "post-industrial" phase of development marked by declining productivity gains, lower average returns on investment, greater barriers to entry in many industries, greater concentration of manufacturing capabilities, and declining rates of personal savings and business investment.

The Big Question

Only time will tell us whether these are genuine long-term trends. That's because we don't yet know the extent to which economic movements are dictated by "external" events such as war and famine. But whatever the ultimate cause, there certainly are some important trends in the US economy of which any businessman should be aware:

- International events are having more and more impact on the US economy
- Ever-higher percentages of working-age Americans are employed or seeking employment
- The microprocessor will in the coming decades introduce a fresh wave of technological unemployment

- "Deregulation" will continue, making many markets more competitive - and therefore more volatile
- Inflation will remain severe enough to continue affecting differentials, savings rates, interest rates, and many other sectors of the business environment
- After many years of de-emphasis, the supply side of the economy is reasserting itself
- Regional difference in economic performance and market strength will increase

Most of these points are self-explanatory, but a few need further comment.

The International Economy

It's obvious that few forms are exported or imported. That's partly because of what is called the bulk-to-value ratio. This is complicated language hiding a simple thought: the cost of shipping most finished paper products is excessive relative to the value added. Thus it would be difficult or impossible for a firm to ship forms across international borders and remain price-competitive. However, in the case of our own industry, non-price barriers are even more serious. In addition to design difficulties such as language, custom, and forms useage, it is usually necessary to maintain frequent contact with a customer in order to produce an end-product that is satisfactory to all. Obviously, such a dialogue is very difficult to begin or maintain with an international client.

But international developments will have an increasing impact on your business environment. The US government has worked steadily since W. W. II to make the economies of developed countries more and more interdependent. These efforts began bearing fruit in the early Sixties and have kept on gathering momentum.

The last two decades have witnessed a steady increase in the importance of foreign trade to the US economy.

In general, the effects are favorable:

- Increased cooperation lessens the chances of major worldwide depressions such as occurred in the 1930s
- Easier exchange of goods, services and ideas fosters healthy competition
- The US remains pre-eminent in high-technology equipment and services which show the greatest potential for both growth and value-added in the years to come
- Easy transfers of capital allow flexible international investment, increasing the long-term efficiency of manufacturing sectors in all developed countries

However, such developments also decrease the independence of our government's economic policy. The strength of the dollar, changes in foreign interest rates, the budgetary policies of other developed countries, international consumer demand, and international business confidence are but a few of the factors that will be increasingly important to American policy-makers. European governments have been grappling with such issues for decades; the US government and business community must make rapid adaptation to this change in the economic environment.

The Supply Economy

For most of the post-war years, manufacturing in the US has been marked by overcapacity. The result has been very competitive pricing. Consumers can dominate the market in such circumstances, effectively reducing gross margins for manufacturers and often creating very disorderly market conditions.

Recently, the market environment has been comparatively favorable to forms manufacturers. For one thing, the last recession reduced interest in entering the industry. In general, many potential entrants feel that the industry has moved past its "golden age" of impressive and uninterrupted growth.

More important is the failure of paper manufacturers and forms press suppliers to anticipate sharp increases in demand for their products. The end result is of course the very tight market conditions experienced recently by end users of business forms (and many other paper products).

Some analysts believe that this trend spreads right across the manufacturing sector and that it will continue for some time to come. It is more likely that these conditions will only last for about 5 years, although paper supplies will be tight for some time to come with the exception of recessions. There has been considerable argument over the reasons for this shift in emphasis from demand to supply. Of course, no single argument can cover all cases, and some important sectors, such as the auto industry, remain heavily demand-oriented. However, one of the most persuasive arguments for this shift in emphasis has to do with government actions. Encapsulated, this argument runs as follows:

- Business investment in new plant is the result of a decision that a real net return greater than the long-term rate of interest can be realized from a project.
- Individual sections of federal economic policies have interacted, often in unanticipated ways, to reduce incentives for such investment, primarily by increasing uncertainties:
    - Increasingly stringent environmental protective legislation is seen as reducing the normal lifetime of new plant and equipment and/or increasing its lifetime cost through the need for ongoing modifications.
    - Widespread acceptance of a concept of "excess profits" among public officials.
    - An increasingly arbitrary "stop-go" system of policy-making, in which policies are suddenly added, deleted, changed, and reversed, destroying continuity of purpose and faith in government intentions.

In sum, these problems may well have created a climate in which the government is happy to let the business community bear the cost and risk of increasing our productive capacity, but is unwilling to let that same community reap the rewards of its initiatives.

Inflation

The actual rate of inflation may move a few percentage points up and down the scale, but the problem is here to stay as far as business planning is concerned. Reasons are numerous:

- No end in sight for large Federal deficits, more than compensating for the balanced or even surplus budgets under which most state and county units operate
- Continued rises in the prices of many base metals and important commodities due to worldwide shortages and scarcities
- Wage demands in excess of productivity increases as workers at all levels attempt to defend their standards of living
- Dismantling of international currency and exchange controls has left international money markets in turmoil - and temporarily outside the control of any single government

The most important effects of forms manufacturers are:

- Continued high interest rates, since these rates are closely tied to inflation
- Continued high wage demands
- New equipment must generate sufficient return to bear a replacement cost much higher than the original investment
- Current-dollar values of plant and equipment will rise (a situation not generally reflected in balance sheets)

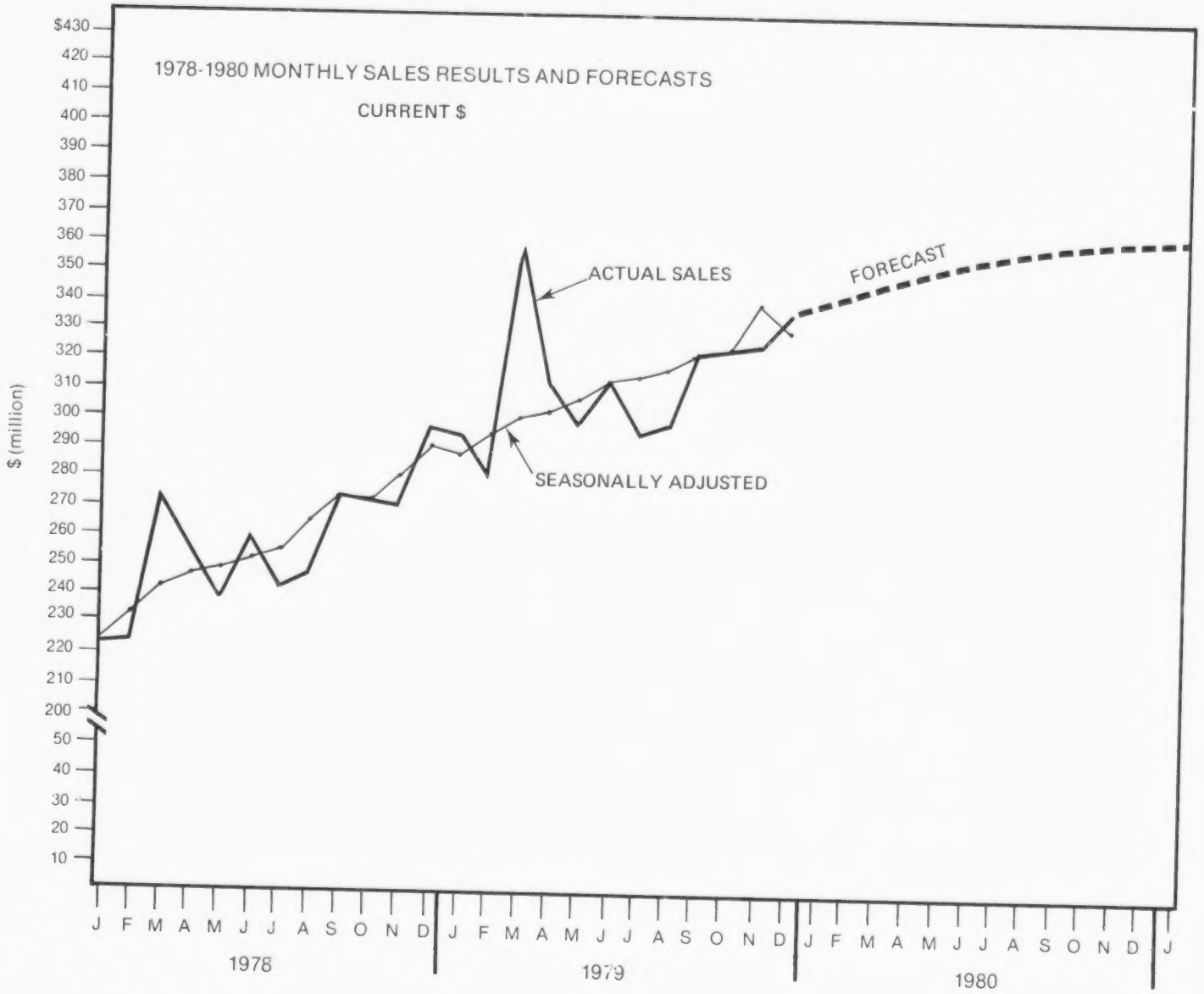
The IBFI Economic Forecast

	1979	1980				1981				1982			
	IV	I	II	III	IV	I	II	III	IV	1979	1980	1981	1982
GNP and Its Components Billions of Dollars - SAAR													
Total Consumption	1580.4	1632.3	1686.7	1731.6	1777.8	1821.4	1868.7	1934.0	2003.9	1509.8	1707.1	1907.0	2176.2
Nonres. Fixed Investment	265.2	276.9	280.8	285.7	292.3	298.3	305.4	313.1	321.1	254.9	283.9	309.5	347.3
Res. Fixed Investment	116.4	108.1	94.6	87.0	87.7	95.6	107.4	122.0	136.2	114.1	94.3	115.3	164.9
Inventory Investment	5.6	5.5	10.2	0.4	-4.6	-1.0	3.9	6.0	12.6	18.1	2.9	5.4	22.1
Net Exports	-11.9	-19.5	-18.7	-16.2	-13.8	-13.3	-13.1	-13.5	-15.5	-4.6	-17.1	-13.9	-24.5
Federal Purchases	178.4	186.8	189.8	193.9	203.2	207.6	212.1	216.2	225.6	166.7	193.4	215.4	241.3
State and Local Govt. Purchases	322.8	333.9	339.2	345.2	351.6	361.6	370.4	381.1	390.5	309.8	342.5	375.9	416.4
Gross National Product	2456.9	2523.8	2582.6	2627.4	2694.1	2770.2	2854.8	2959.0	3074.5	2368.8	2607.0	2914.6	3343.6
Real GNP (1972 Dollars)	1440.3	1445.7	1436.8	1422.1	1418.6	1422.7	1431.2	1448.7	1467.6	1431.6	1430.8	1442.5	1507.2
Prices and Wages - Rates of Change													
Implicit Price Deflator	8.3	9.7	12.4	11.6	11.6	10.5	10.1	10.0	10.6	8.9	10.2	10.8	9.8
Production and Other Key Measures													
Industrial Production (1967=1.000)	1.522	1.526	1.499	1.464	1.450	1.457	1.475	1.504	1.534	1.521	1.485	1.492	1.611
Rate of Change	-0.3	1.1	-7.0	-9.0	-3.7	1.9	5.1	8.1	8.2	4.1	-2.4	0.5	8.0
Housing Starts (Mil. Units)	1.593	1.301	1.093	0.994	1.109	1.277	1.427	1.610	1.745	1.722	1.124	1.515	1.918
Unemployment Rate (%)	5.9	6.1	6.5	6.9	7.2	7.5	7.7	7.7	7.6	5.8	6.7	7.6	7.2
Money and Interest Rates													
Federal Funds Rate (%)	13.58	15.06	16.44	14.39	12.43	10.97	9.96	9.47	9.91	11.19	14.58	10.08	11.02
Prime Rate (%)	15.08	16.51	19.02	17.05	14.55	13.06	12.24	11.66	11.68	12.67	16.78	12.16	11.93
Composition of Real GNP - Rates of Change													
Gross National Product	2.0	1.5	-2.4	-4.0	-1.0	1.1	2.4	5.0	5.3	2.3	-0.1	0.8	4.5
Final Sales	3.6	1.4	-3.2	-2.7	-0.4	0.6	1.8	4.7	4.5	2.7	0.6	0.7	4.0
Total Consumption	4.1	0.7	-1.0	-1.6	-0.4	-0.4	0.8	4.4	5.0	2.6	0.9	0.5	4.0
Nonres. Fixed Investment	-0.5	8.1	-4.9	-4.0	-1.5	-2.7	-1.8	-0.8	-0.7	6.2	1.5	-2.3	1.2
Equipment	-5.9	6.2	-5.0	-3.3	0.2	-0.9	-1.2	-0.2	-1.3	4.7	-0.1	-1.2	2.2
Nonres. Construction	11.9	12.1	-4.7	-5.5	-5.0	-6.2	-3.2	-1.9	0.4	9.6	5.1	-4.3	-0.6

1980 EXPECTATIONS

1980 FORECAST: The value of the 1980 forecast has regrettably been somewhat cheapened by the failure of the oft-and fervently-predicted 1979 recession to materialize. In the forecast section of this report, it will be argued that the main components of 1979 economic events were correctly predicted. These were: a levelling off of economic growth due to the reaching of capacity limits on the supply side and spending limits on the demand side; a substantial increase in the level of inflation due to rising world commodity prices, severe pressure from the supply/demand imbalances that arise near the end of every modern expansionary period, and irresponsible government management of its fiscal and monetary policies; and additional pressure on the forms industry in particular from non-forms and less-forms technologies. *In fact, all of these predictions came true.* The problem is that the imbalances were so great that consumers decided to forget about savings and to spend while they still had the wherewithal to do so. Until very late in the year (November) the Federal Reserve supplied the cheap money with which this behavior could be financed, and the rate of personal savings dropped to an all-time low in American economic history. As for the forms industry in particular, this spending spree also resulted in more rapid installations of mini-computers and small business computers, and generated more transactions all around. Finally, the international political climate resulted in unexpected increases in defense and R&D spending, which add to the GNP in general and to the demand for computer output forms in particular.

There is an old saying that there is no such thing as a free lunch. So it is with economic performance. IBFI believes that this unexpected spurt which provided such a boost to the industry in 1979 will be paid for by slower-than-expected growth throughout the economy in 1980 and for 1 to 2 years beyond. However, recent evidence suggests that while sales of minis and SBCs may well slacken due to software bottlenecks, those machines are using a wider variety of forms and in greater quantities than was previously believed. Thus, after a relatively slow year in 1980, the forms industry is expected to recover more sharply in 1981 than the economy as a whole and will enjoy substantial real growth through 1984 (barring, of course, unforeseen events such as war).


1978-1980 MONTHLY SALES RESULTS AND FORECASTS
CURRENT $
$ (million)
$430
420
410
400
390
380
370
360
350
340
330
320
310
300
290
280
270
260
250
240
230
220
210
200
50
40
30
20
10
ACTUAL SALES
FORECAST
SEASONALLY ADJUSTED
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J
1978
1979
1980

The Market In 1980:

Forms shipments are expected to show real growth in dollar terms of 3.5% in 1980, as compared with 1979. Due to the uncertain economic situation - a situation made even more uncertain by the upcoming elections - no attempt has been made to factor inflation into the forecast. Readers are urged to make their own forecasts of price inflation when using the estimates for planning and analysis. *All forecast dollars in this report are based on dollar values as of December 31, 1979.* Therefore, because our estimates of real versus price gains in 1979 were an average of price gains that occurred throughout the year, the real gain from December 31 to December 31 will be about 4.1%. This translates to expected total forms shipments in December, 1980 of $3,914 billion.

Of course, this gain will not be spread evenly by product or by quarter. Continuous custom will be the industry leader - and it is expected that for the next few years this product will prove *relatively* immune to cyclical effects because of the increasing number of small-order customers to be found in this segment of the market. Continuous stock typically suffers more than other product categories during economic recession or stagnation. This trend will if anything be even more noticeable than usual in 1980. IBFI has reported in the past that more and more large users of computer output forms are switching to stock and near-stock forms. This trend seems to have accelerated in 1979. One result is that the stock product category contains more and more of those customers whose size and frequency of orders fluctuates in accordance with general economic trends. Unit sets will perform at approximately the industry average, while salesbooks will also underperform the industry as a whole. The product breakdown of the forecast is summarized below:

(Current $ Millions)

	1979	1980	% Change
Unit Sets	1,248.7	1,300.0	4.1%
Continuous Custom	1,466.9	1,547.6	5.5%
Continuous Stock	891.4	911.4	2.2%
Salesbooks	154.2	155.0	.5%
TOTAL	3,761.2	3,914.0	4.1%

Breaking the forecast out by quarter shows that the first quarter will start out rather strongly , but that by March sales will be softening noticeably. The second quarter will be fairly soft. All categories except custom are expected to show real declines during that quarter compared with the same period last year. Stock and salesbooks may even show current-dollar declines, albeit of a small magnitude. Offers of increased discounts and inability to stick to list prices will become commonplace during the second and third quarters. Some recovery, partially seasonal in nature, is expected in the fourth quarter.

1980 Sales Forecast By Quarter

	1	2	3	4	Total
1979	942.6	930.6	898.9	989.1	3,761.2
1980	1,026.6	916.9	915.6	1,054.9	3,914.0

1981 and Beyond:

In 1981 the economy is expected to remain fairly sluggish, with some improvement in the fourth quarter. This sluggishness will keep the forms industry to about 6% real growth as compared with 1980. In December, 1979 dollars, this increase will bring industry receipts at shipment values up to $4.150 billion. Again, continuous custom is expected to lead the industry, with unit sets performing at approximately industry average and stock performing rather below that average.

It is rather speculative to forecast for the years 1982-1984. However, other things being equal, the economy should have recovered - but not to the extent of the recent boom. The burgeoning small business computer and mini-computer market is expected to lead the industry to real growth of 8.5-9% during those years. These increases would bring industry receipts at shipment value up to $4.511 billion in 1982, up to $4.906 in 1983, and $5.335 in 1984. While continuous custom will continue to lead the industry, stock will also make a strong recovery during those years.

SELLING TO THE SBC AND MINI MARKETS will be the major challenge facing forms manufacturers during the next five years. A number of approaches have been suggested among them direct mail, increased sales through distributors, forms "stores", and the like. Ultimately, the marketplace will make the final decision.

NEW TECHNOLOGY: IBFI is continuing to track the impact of new technologies upon the forms market. As evidence accumulates, it becomes more and more apparent that the main impact of these technologies is loss of value added rather than actual displacement of forms. Nonetheless, such a loss should be of concern to manufacturers. Still - as the report below suggests in detail - new technology is continuing to provide the main opportunities for this industry as well as the main challenges. Against the non-forms and less-forms technologies that are continuing to develop (but rather more slowly than was originally predicted by proponents of such systems) must be weighed the benefit from the continuing spread of EDP through the economy.

REVISIONS OF MID-SEVENTIES INDUSTRY RESULTS: Another main objective of this report has been to update industry statistics for the last ten years. In this task IBFI was substantially helped by the release of the preliminary findings from the US government's 1977 Census of Manufactures. As a result of this research, industry analysts and executives will find two surprises. First, overall shipment values have been revised sharply upward. IBFI believes that the reason for our failure to predict these values accurately in the first place was the entry into the industry of many more new firms than anyone expected. Secondly, some of the trends which we have predicted in terms of product shares seem to have taken place more rapidly than we expected. The share of market held by continuous stock has been revised upward, while the increasing dominance of continuous forms as a whole has also been even more substantial than we originally believed.

SUMMARY OF INDUSTRY TRENDS: As the industry matures, it seems to be segmenting itself, with different parts going in different directions. At the top end of the market, we find a group of well-established firms which are showing all the signs expected of firms in a maturing industry. That means continuing mergers, acquisitions, and consolidations; conservative marketing strategies; and a slowdown of growth relative to the rest of the industry. The evidence suggests that the largest firms have generally lost market share over the last five years, and IBFI believes that this gradual erosion is going to continue. It is these firms, which still sell for the most part to "traditional" forms markets, that will feel most sharply the effects of non-forms and less-forms technologies - and the natural slow-down of the rate of growth (not to be confused with actual sales dollar declines) that results from saturation of those "traditional" markets. But at the bottom end of the market, there are still a lot of small firms entering this industry. The impetus for their doing so is the emergence of the small-business market, a service-oriented, less price-sensitive arena that is ideal for such firms. That end of the market will show dynamic growth over the next five years as those "lean and hungry" firms go for growth with a spirit that has in many cases been lost by the older "fat and happy" firms. But this new blood, combined with the growth pressures resulting from the higher cost of money, could well infuse the whole industry with a new spirit over the next five to ten years.

FORECAST SUMMARY AND HIGHLIGHTS

The Near Term

- Some inventory adjustment in 1980
- Real growth will occur mostly in the first quarter, will be flat or even negative during most of the balance of the year, perhaps with some recovery late in the fourth quarter
- Inflation will continue to generate dollar increases in sales, but price adjustments will moderate due to softer market conditions
- Capacity utilization rates will suffer due to new-equipment deliveries
- Production employee costs and sales costs will rise as a percentage of cost of production
- Decreased capital investment will result from market conditions and high interest rates

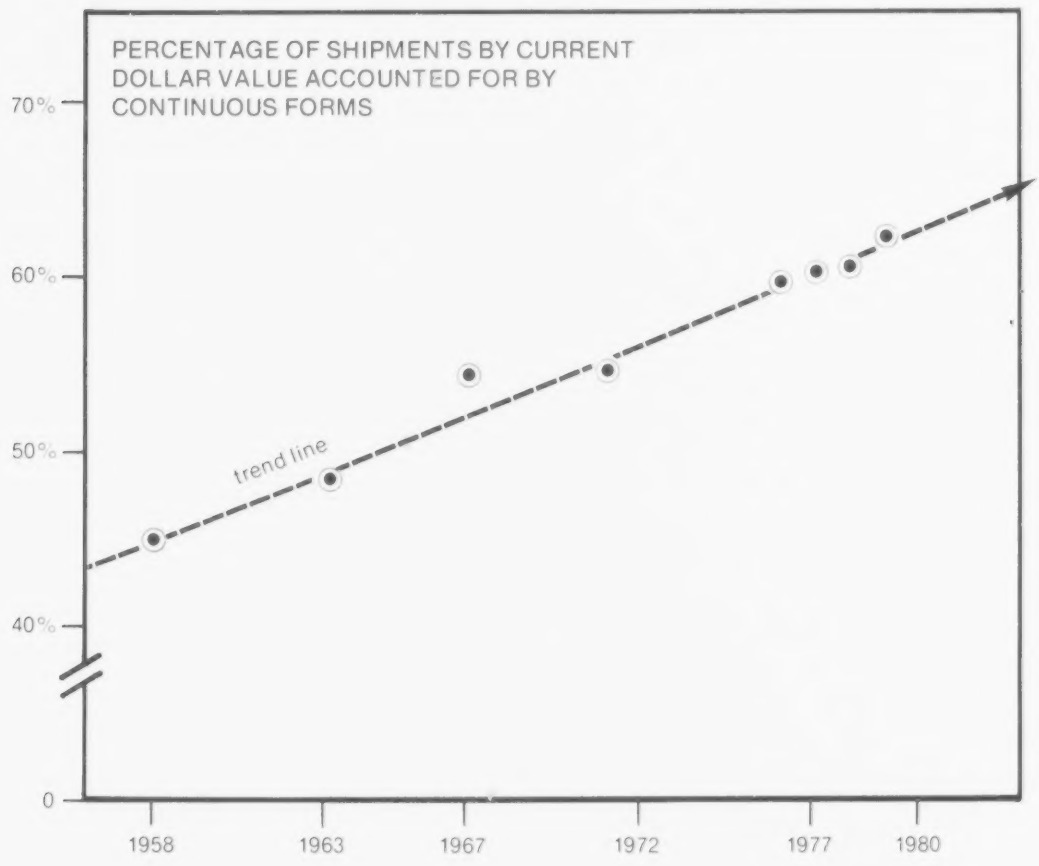
1981 and Beyond

- Real GNP will grow by 2.8 - 3.0% per year
- Forms shipments will enjoy a period of significant growth by mid-1981
- There will be continued pressure on value added, due to fewer parts, smaller forms, and conversion of custom to stock
- There will be continued loss of traditional forms to new technologies, offset by continued growth due to more computers and printers of all sorts and more transaction in the economy.
- Capacity utilization will recover only gradually as quick-makeready systems become more and more essential while older presses are not retired
- Some lost value-added will be replaced by more color work and continued switching to carbonless

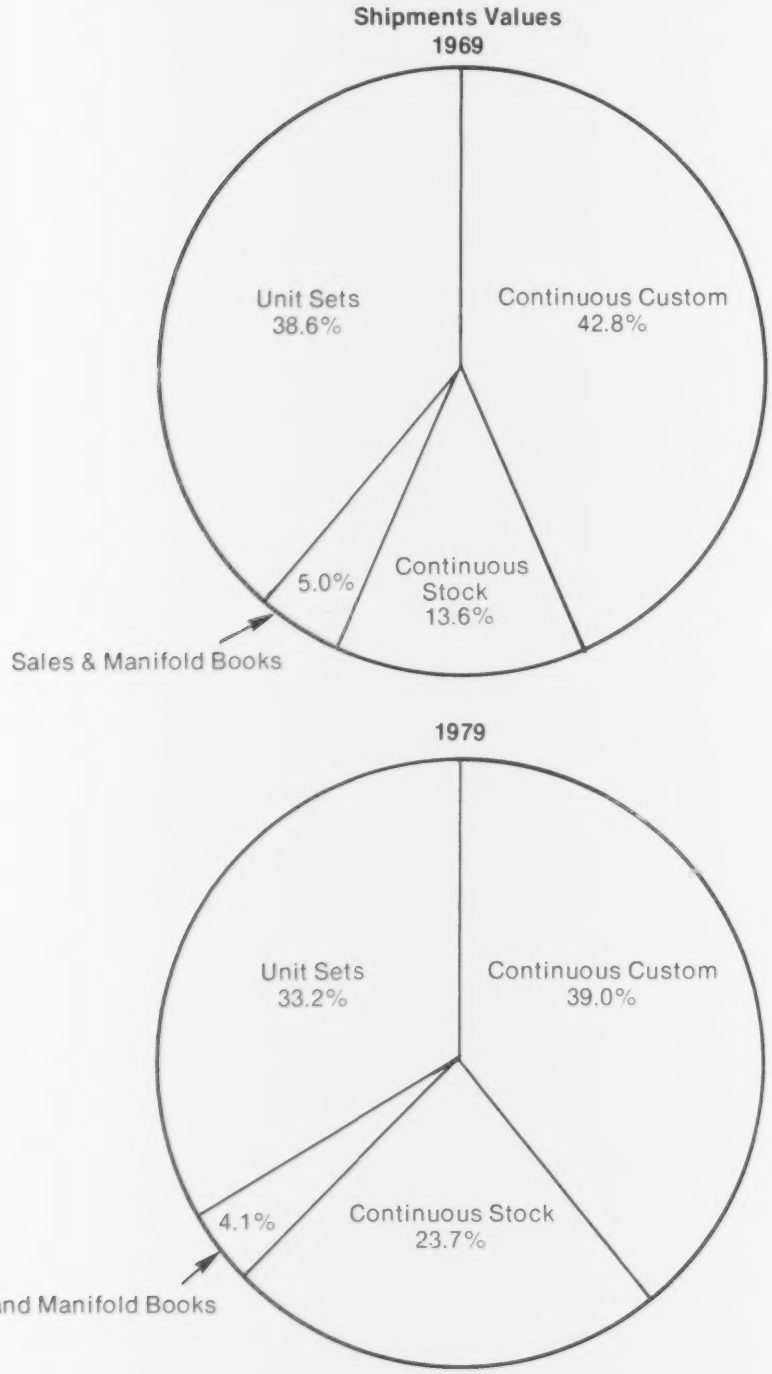
A CHANGING MARKET

There are trends affecting the forms market which cannot be accurately tied down but which bear mention. The most important of these is the steady rise in the importance of continuous forms measured as a percentage of total industry shipments. There is no reason to assume that this trend will stop in the next five years.

Of equal importance is the rising significance of stock forms as a percentage of shipments of continuous forms. It is in this area that much of the pressure on value added originates. Forms are getting physically smaller as well as more efficient in their processing of information.



PRODUCT MIX: 10 YEARS OF INCREMENTAL CHANGES



FORMS INTO THE EIGHTIES

The neat, hard numbers presented in the previous section are really only a part of the story behind IBFI's forecast. Within those numbers are some subsidiary forecasts on the impact of technology and some partly subjective, unquantifiable judgements on the net effects of changes in the socio-economic environment in which our industry operates. A discussion of these estimates and judgements is in order for those who wish to agree or disagree with the dynamics of IBFI's forecasts.

Specific Technological Trends

One of the main ongoing events in the business forms industry worldwide is its continuing interaction with technological developments, particularly those related to computers and the data-processing environment. IBFI has done considerable research in tracking these developments in recent years. Much of this research has been proven substantially correct in its assumptions and estimates, and needs only to be updated in this issue of *Perspective*. In other areas, meanwhile, the pace of change has been so rapid that new work has been done and will be presented to the forms industry for the first time below.

There are four broad areas of technological development with which forms manufacturers should be concerned. These are:

- The non-impact printer in its various forms.
- Computer output microfilm and micrographics.
- Electronic mail and the whole concept of the paperless office.
- The decentralization of computing power.

And additionally, the renewed interest in forms management reported by many salesmen is linked with the capabilities of some of this new technology.

Of these various trends, only one - the decentralization of computing power - is actually a positive net contributor to the forms market. The others all exert a negative influence on gross margins if not the overall demand for continuous forms. So the first question we must address is, why has the computer industry shown such interest recently in less-forms and non-forms technologies? The reason for that interest can be summarized in one word: *productivity*. Yes, this strong interest in managing computer output came about in the first place because of the through-put limitation imposed on the computer by the relatively slow line printer.

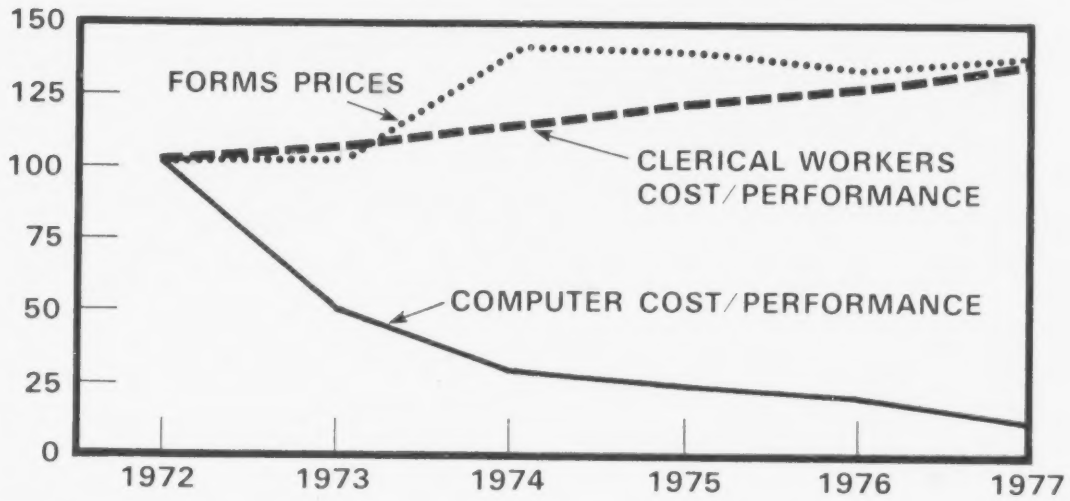
Productivity

The fastest line printer may be able to output 3000 lines per minute; most are much slower. The computer, on the other hand, operates at close to the speed of light. Each successive generation of electro-mechanical output devices has attempted to help unbind the computer from the printer, but real breakthroughs have only recently been made with non-mechanical devices.

A second reason why so much attention has been focused on output is its cost relative to the cost of computing. The amount of processing power that can be purchased for each dollar invested in a computer has risen to more than ten times what it was in 1972. In other words, one can do the same job on today's computers for one-tenth the investment cost of doing it on a 1972 computer. In the same time the cost of computer room personnel has risen over 40 percent while their productivity has improved a marginal 4 percent. Forms costs have also increased substantially since 1972. Although supplies costs are still 5 percent or less of total cost of a computer operation, they are often easier to control than most other costs.

In general, computer users have turned to three alternatives to cut costs and increase productivity. They are computer computer microfilm, non-impact printing, and forms management.

PRODUCTIVITY/COST

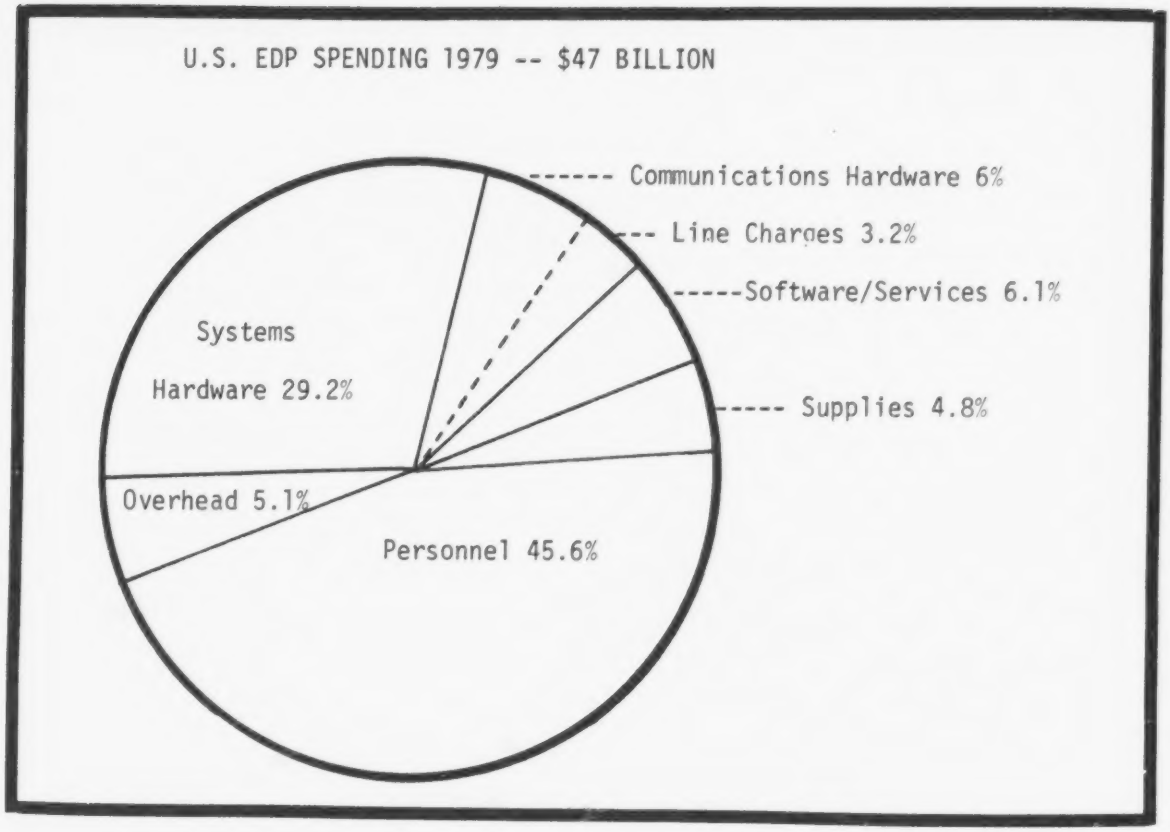


Computer Output Microfilm

The growth of COM continues to be slower than was originally predicted. In fact, it is unlikely that COM devices will ever achieve the market penetration once anticipated by its proponents. The potential impact of this technology on demand for forms is further lessened by the fact that it is a less-forms technique at worst, aimed at cutting system costs rather than forms or paper costs. Nonetheless, COM must still be taken seriously with over 3,500 machines in place.

Indeed, COM has many potential cost-cutting advantages. Not only can such devices reduce output costs directly, but they can also - and more importantly - cut storage, handling, mailing and distribution costs. These costs greatly exceed the costs of output. The main limitations to the spread of these devices have been the poor human engineering of the systems, the need for special readers and a special copier for paper copies, and relatively high investment costs. None of these limitations are inherently insoluble, but it now seems likely that the advent of technologies such as bubble memory which are both cheaper and superior will remove the incentive to overcome those limitations. Accordingly, IBFI has revised downwards its estimates of the growth in the field population of COM devices.

There is another factor limiting the damage done by COM to forms demand. The very nature of the equipment is such that its main impact on the forms market has been loss of value added rather than actual displacement of forms. Although a typical COM recorder processes an average of 10-12 million applications converted from hard-copy computer forms, the 3 to 5 paper copies that are subsequently made from the COM original are not generally pulling the original from the file. In other words, COM is aimed very narrowly at record centers. As such, its basic purpose has always been to reduce the cost of maintaining archives rather than to reduce the cost of generating them.


U.S. EDP SPENDING 1979 -- $47 BILLION
Communications Hardware 6%
Line Charges 3.2%
Software/Services 6.1%
Supplies 4.8%
Systems
Hardware 29.2%
Overhead 5.1%
Personnel 45.6%

SOURCE: IDC

Still, some damage has been done. And although the field population of COM devices is growing more slowly than was originally predicted, each machine in place seems to be getting rather more use as time goes on. Virtually all of the loss will occur at medium and large general purpose computer sites using over 2 million pages per month. Continuous stock forms will suffer the greater part of any losses.

COM RECORDERS AND VALUE OF FORMS DISPLACED
(all values in 1979 dollars)

Year	COM In Place	Pages Displaced (Billions)	VALUE DISPLACED		
			Stock	Custom	Total
1979	3700	14	$ 81	$21	$102
1980	4000	15	84	25	109
1981	4400	17	94	30	124
1982	4700	19	108	31	139
1983	4950	20	114	32	146
1984	5150	21	121	32	153

The above table reflects IBFI's opinion that by the mid-1980's other devices will be entering the archival market in competition with COM. It is very likely that by the end of the present decade there will be records-management systems available at a price that will allow them to enter the small-computer-site market. However, it is impossible to predict the market impact of equipment that has not yet been commercially developed!

NON IMPACT PRINTING

Introduction

In the previous edition of *Perspective*, IBFI reported that the market for NIP devices was "confined to large EDP installations with three or more conventional line printers using in excess of one million pages per month." The report went on to explain that these limitations had to be imposed on the NIP market potential "because of the high hardware costs and high output capacity" of such devices, but that "IBFI expects smaller, less expensive models to come on the market in the early 1980's." Indeed, the total market for those devices has changed significantly. In the next five years that change may become dramatic, although it will be evolutionary and not revolutionary in nature.

NIP Devices by Primary Application

The major change which has occurred in the last 12 to 18 months is that these devices are reaching into new markets. At the top end of the market one finds the IBM 3800, the XEROX 9700, the Honeywell PPS, and similar devices offered by Siemens, Cannon and Fuji. These machines are aimed at the large EDP installations mentioned above. Their main advantage is they achieve speeds well above those attained by even the best impact printers (NIP speeds can be as high as 20,000 lines per minute). While some claim that the NIPs are more reliable than the equivalent number of impact printers, and therefore experience less downtime, others claim that the greater need for routine maintenance is a rough counterbalance. At this end of the market - and given the price tags of $125,000 to $310,000 (with optional features adding as much as 20% to that base price) - the quietness of these machines plays no role in the purchase decision. Use of these machines has grown at more or less the expected rate, and by the mid-eighties continued growth of their field population will depend on a growing number of large EDP sites or increased throughput at existing sites. So IBFI has few changes to make in updating its estimates for these machines.

TABLE 6

NON-IMPACT PRINTER FORECAST

Year	Units in Place			Total Paper Usage (Billion Pages)	Value Lost to Mix and Displacement (Millions 1978 Dollars)		
	Forms Using	Sheet or Roll Using	Total		Stock	Custom	Total
1979	630	870	1,500	22	$ 40	$ 25	$ 65
1980	1,100	1,200	2,300	40	70	55	125
1981	1,800	2,000	3,800	70	110	110	220
1982	2,700	2,900	5,600	104	140	165	305
1983	3,700	4,100	7,800	138	170	240	410
1984	5,000	5,000	10,000	165	185	330	515

Source: IDC

Printers vs. Copiers

Devices for the non-impact printing of computer output can sensibly be divided into two classes, these being actual non-impact printers on the one hand and intelligent copiers on the other. The differential is *not* the actual technique by which the non-impact characters are formed. It happens that ink jet is found only in relatively complex and expensive equipment (currently the IBM 6640, the Siemens PT80, and the Silonics 80) thus removing it from the intelligent copier class, but there is no practical reason why that situation cannot change. Instead, this classification is based upon hardware cost and the intended use.

When the market is examined from this viewpoint, it becomes clear that some non-impact devices are virtually a new type of printing press. Printers such as the IBM 3800, the XEROX 9700, the Honeywell PPS, and similar devices offered by Siemens, Cannon and Fuji achieve output speeds of 4,000 to 20,000 lines per minute (or 60 to 216 pages per minute). The price tags for these devices are also in line with those for cheaper presses. Because of that high hardware cost, these devices are competitive with the faster impact printers only when used continuously at ultra-high speeds. For that application non-impact has sufficient advantages to be cost-justified.

The so-called intelligent copiers are in quite another class. First of all, they are cheap enough to compete more directly with impact equipment of comparable performance. More importantly, they have general-purpose applications above and beyond the printing of computer throughput. In short, these devices are sophisticated office machines - one of the classes of device which are beginning to make the EDP-assisted office an economic possibility. As such, they *cannot* compete with comparable impact printers in environments where the only need is the printing of computer throughput. However, they are virtually in a class by themselves in the office environment.

Why Choose One Printer Over Another?

Ultimately, nearly every decision on hardware spending depends upon price. In examining the priorities which users place upon the different performance characteristics of equipment, one must remember that any of these priorities can be advanced or retarded depending upon the price. So it should be no surprise that *reliability* is the most sought- after characteristic, as it has the most direct impact upon downtime and therefore operating costs. Next on the list is print quality, followed closely by the type of paper used and the flexibility for substitution. The actual price tag and the speed of the device are well down on the list, while quietness and the need for special symbols bring down the rear.

The essence of the intelligent copiers is their multifunctionality. Therefore, it should come as no surprise that equipment like the IBM 6670 or the Wang IIP cannot compete directly with any single-function devices in terms of the performance/price ratio for accomplishing that one function. Instead, they are "packages" spanning word processing, distributed data processing, output printing, and office copying. They are aimed at the office market where quietness and ease of operation are important features, and their salesmen like to refer to them as " information distribution centers." Despite their substantial price tags (typically $50,000 - $100,000) the field population of these machines is likely to experience rapid growth throughout the decade. Their near-term impact on the forms market will be miniscule. That is because they typically do not replace existing impact (or other forms-using) printers. In the longer term, however, such "packages". have worrying implications for the burgeoning small-business-computer segment of the forms market. If the price of such packages comes down, as seems most likely, they could present attractive alternatives to more conventional devices. And none of them use forms as we know them; because of the copier requirement, all use cut size. IBFI believes that ultimately these machines will have a major impact on the office environment. The implications for the forms industry are discussed in the section on the electronic office.

Forms Management

Forms management is not easy to describe or measure since there are so many variations of it. For convenience, one could divide it into three levels. At the first level, the forms manager is simply trying to control the quantity of forms used. This activity may involve controlling inventories, purging obsolete forms, or requiring approval for new forms. At the next level up, the forms manager redesigns forms to control forms costs. Some of his activities may include increasing print density, switching from custom to stock, using less expensive paper, or eliminating unnecessary parts. At the third level, the forms manager is less concerned with forms costs than he is with total system costs. In fact, he may increase forms costs if that results in lower total systems costs. Activities may include initiating an exception reporting system or consolidating different forms or including the form in a self-mailing system. According to forms managers in the field, the forms salesperson has done a good job at this third level, but has largely ignored the first two. As a result, forms management departments have been created in many of the larger customer organizations. These forms managers are actively seeking ways to control and cut forms costs. Many forms companies have responded by creating their own forms management programs. This response may limit the negative effects of forms management to larger customers and hold the loss of sales and value added to about $200 million in 1984.

TABLE 7

VALUE LOST FROM FORMS MANAGEMENT
(Millions 1978 Dollars)

Year	Continuous Stock	Continuous Custom	Unit Sets	Total
1979	$25	$ 55	$30	$110
1980	30	70	35	135
1981	30	90	40	160
1982	30	100	45	175
1983	30	105	55	190
1984	35	105	60	200

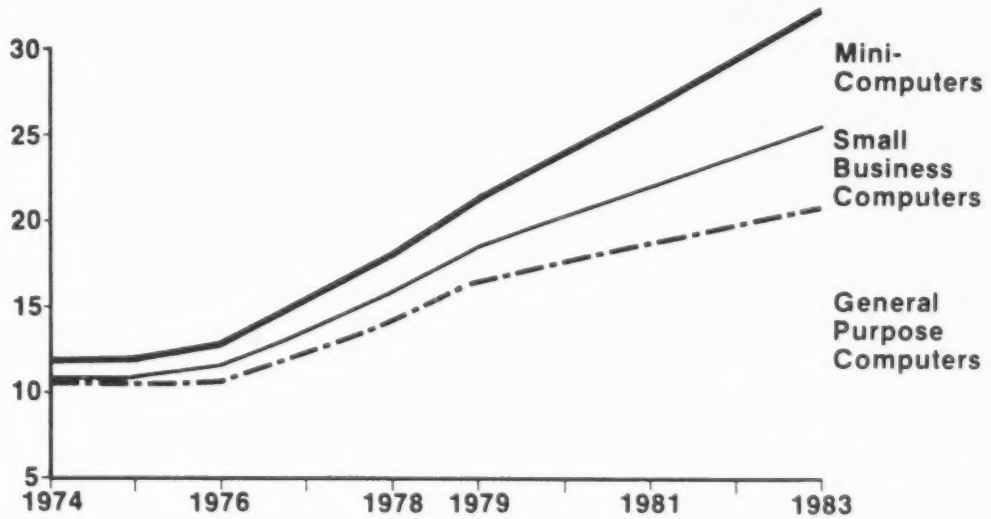
Source: IBFI Survey of Forms Managers

COMPUTERS AND FORMS

Historically, the computer industry's revenue has grown faster than either the economy or most other industries. Furthermore, it has so far proven relatively immune to the full effects of the business cycle. *These trends are expected to continue.* The microprocessor, meanwhile, has not merely made computers smaller and, on a performance-weighted basis, cheaper. It has enormously increased competition within the computer industry and has resulted in a bewildering array of hardware and vendors. These trends are also expected to continue.

IBFI has stated previously that forms manufacturers will see a changing market for continuous forms over the next five years. These trends are already visible and may well accelerate. New technologies are causing serious inroads on the value added in forms sold to large sites, especially that "elite" 1% of sites that are believed to consume over 20% of all continuous forms. On the other hand, the decentralization of computing power is giving a substantial boost to the overall sales of continuous forms. As shown below, this trend will make the general purpose computer market a less and less important part of the overall market.

COMPUTER SYSTEM SHIPMENTS
$Billion by U.S. Based Manufacturers



SOURCE: IDC

GENERAL PURPOSE COMPUTERS

The rapid growth of the minicomputer and small business computer market has drawn so much attention that one would think the general purpose computer market is all but a thing of the past. Of course that is not so. All things are relative, and while general purpose computers are not enjoying the percentage growth in value of shipments which characterized that market throughout the 60's and during much of the 70's, the market is still far from stagnant. 1979 was a good year for this market, as it was for many other markets. The annual increase in dollar value of US shipments was 16.2%. The recession is expected to bring this percentage change down to some 7.2% for 1980 worldwide and just over 7% in the US. The continuing market penetration of smaller and cheaper computers is expected to affect this market, which should see a 20% decline in the number of units shipped by the mid-80's. In terms of the dollar value of such shipments, the US general purpose computer industry will still have roughly a 5% growth rate during the 80's.

Of course, the statistic most important to forms manufacturers is the installed base of such computers. As the average age of the current population of general purpose computers increases, estimating the installed base becomes trickier. The number of retirements has increased during the 70's, and although the industry has recovered from the very high rates of retirement which characterized the first half of the decade, during the 80's one general purpose computer will be retired for every three new installations. That will of course have a substantial braking effect upon the growth of the installed base. However, the dollar value of that base will be less affected because the newer machines tend to be more expensive than the older ones. Furthermore, computing power is growing more rapidly than any shipments indices would indicate because of technological advances in electronics.

GENERAL-PURPOSE COMPUTER MARKET
(U.S.-BASED MANUFACTURERS)

	Number Systems Shipped	Cumulative Number In Use	$ Million Value Shipped	$ Billion Value In Use
		UNITED STATES		
1974	8,600	61,500	$ 6,200	$ 30.2
1975	6,700	62,100	5,610	33.8
1976	7,200	59,600	5,530	37.9
1977	8,900	58,200	6,600	42.9
1978	4,600	58,000	7,400	48.7
1979	5,600	59,800	8,600	54.7
1980	10,000	62,300	9,200	60.9
1981	10,000	64,300	9,700	67.2
1982	9,000	66,200	10,200	73.7
1983	8,000	68,000	10,700	80.4

SOURCE: IDC

DECENTRALIZATION OF COMPUTING POWER

Most of the new technologies that will affect our industry during the Eighties seem to have potential negative effects upon forms shipments. Yet the industry continues to achieve real growth rates well in excess of GNP improvements. The reason for this success is the ongoing *decentralization of computing power.* This decentralization is a result of two trends: first, the increasing use of terminals (distributed data processing); and secondly, the increasing use of small computers of all sorts. So access to computers is increasing almost constantly. Furthermore, that access is increasing both in terms of the number of people within organizations who use computers and the number of organizations that have computerized part or all of their operations.

There are several reasons for this development. The most important one has to be that computers, especially peripherals, are getting smaller and cheaper. (Also, new carriers are moving in on the monopoly formerly enjoyed by the Bell system.) A second reason is that the EDP industry has done a good job in recent years on its "human engineering". Under the impetus of this assault, the computer and its associated equipment are no longer strange and mysterious devices to be held in awe by the layman. The fact that EDP equipment has become easier to understand and operate is a critical factor in the explosion of the small computer market. Thirdly, inflation has had a positive dynamic effect on the EDP industry's growth. Frequent and substantial increases in the prices of most other productive inputs have emphasized the decline in the real price of computing power. Also, the inflationary environment has posed new challenges to businessmen and especially to managers of small businesses that do not generate their own investment capital or enjoy special relationships with bankers. The resulting need for more sophisticated managment has been a powerful part of the impetus toward the installation of computers in smaller and smaller businesses.

So in summary, these trends have seen more computing power decentralized from large mainframe sites and have seen a quantum jump in the installation of new computing power in previously unautomated or service-bureau-oriented users. More and more, large computers are being used for data storage and control with the input and output taking place at remote sites where the transaction occurs or where the information is needed. Meanwhile, small computers are being installed at many new sites and minicomputers are being added everywhere as special-purpose machines with or without the backup of larger machines. However one looks at the situation, these trends mean more paper and therefore more forms. Output is diverted from central sites where it would be subjected to closer controls on forms usage and would probably be put more at risk to the inroads from non-forms and less-forms technologies. These trends also usually mean that more output will be produced than previously because of convenience and new applications.

TERMINAL PRINTERS

In looking at the continued growth and the installed equipment base of the EDP industry in US, one must not forget impact terminal printers. Despite all that has been said about non-impact technologies had the almost phenomenal rates of growth enjoyed by sales of those products, the old-fashioned impact printer is still alive and well. There is a huge installed base which is not going to disappear in any hurry. Furthermore, the industry still expects sales to grow at a surprising rate. The basic fact is that for print quality, cost, and ease of operation the impact printer is still unsurpassed in the low-to-medium speed range. The use of these additional printers is likely to be less paper-intensive than in the past, and this trend is expected to continue. Even so, their sheer number will guarantee an increase in the amount and total value of forms they use.

Terminal Printers Installed

	1979	1984
Remote-Batch	18,100	21,000
Conversational	512,200	644,500
Editing	65,800	130,500
Processing Standalone	114,200	188,500
Clustered Processor	56,100	225,000
Key-to-Disk	10,700	11,100
TOTAL	777,100	1,220,600

MINICOMPUTERS AND SMALL BUSINESS COMPUTERS

Elsewhere in this report it has been said that the truly phenomenal growth of this market is the only logical explanation for (a) the unexpectedly robust performance of the forms industry in 1979, and (b) the apparent breakdown of supposedly well-established relationships between change in GNP and change in forms shipments. 1979 was a banner year for the sellers of minis and SBC's. The number of small business computers shipped increased by 18.8% to 30,300 while the installed base rose by 38.6% to over 100,000 units. Meanwhile, the value of this base rose by 40% to $4.2 billion. Minicomputers also enjoyed very respectable growth. The number of systems shipped rose by over 13% while the value of the installed base rose over 33%.

The disparity between the number of systems shipped and the increases in the dollar value of the installed bases illustrates an important development in the mini and SBC markets. As the microprocessor matures and as developers move along their learning curves, computing power is becoming infinitely variable. In other words, it is increasingly possible for EDP users to select hardware that fits their precise requirements. Somewhat surprisingly, the most visible result of this trend is that purchasers of smaller computers buy rather larger and more expensive units than they otherwise would have done. So the actual computing power of the installed base - an important determinant of the amount of forms likely to be processed by this equipment - is rising even more rapidly than the simple number of such units to be found out in the field. Because of this trend, IBFI's projections this year look at "superminis" and "microminis" as well as what are called the traditional minis. However, these names are only a stopgap in the sense that it is becoming increasingly difficult and of less and less utility to make such distinctions.

U.S. SMALL BUSINESS COMPUTERS

$Billion Installed

SMALL BUSINESS COMPUTER MARKET
(U.S.-BASED MANUFACTURERS)

SOURCE: IDC

	Number Systems Shipped	Cumulative Number In Use	$ Million Value Shipped	$ Billion Value In Use
		UNITED STATES		
1974	3,000	4,500	$ 150	$ .2
1975	7,900	12,400	300	.5
1976	14,800	27,200	580	1.1
1977	21,600	48,800	840	2.0
1978	25,500	72,800	1,105	3.0
1979	30,300	100,900	1,300	4.2
1980	35,700	133,800	1,500	5.6
1981	43,500	173,400	1,740	7.2
1982	52,200	220,900	1,980	8.9
1983	61,600	277,000	2,250	11.0

In terms of forms consumption and purchasing power, the distinction between minicomputers and small business computers is an important one. SBC's are generally small general purpose computers. They are user-programmable and require a wide variety of forms. They will most often be found in small to medium-sized businesses which have no other electronic data-processing capability. They will typically replace a service bureau, although some such firms have gone from manual systems to their own computer without any transition period. Because of the tendency to use computers more as one becomes more familiar with them, the count of forms per machine has increased rapidly over the last years. It is unlikely that this rate of increase can be maintained very far into the 80's.

Minicomputers, on the other hand, are not user-programmable. They will perform a number of very specialized tasks. They will typically be filling small, specialized parts of a larger organization's overall EDP capability or performing limited roles in very small businesses. As such, they use fewer forms per machine and a much more limited variety of forms. On the other hand, many of the purchasing requirements for such machines will be handled through central buying agents.

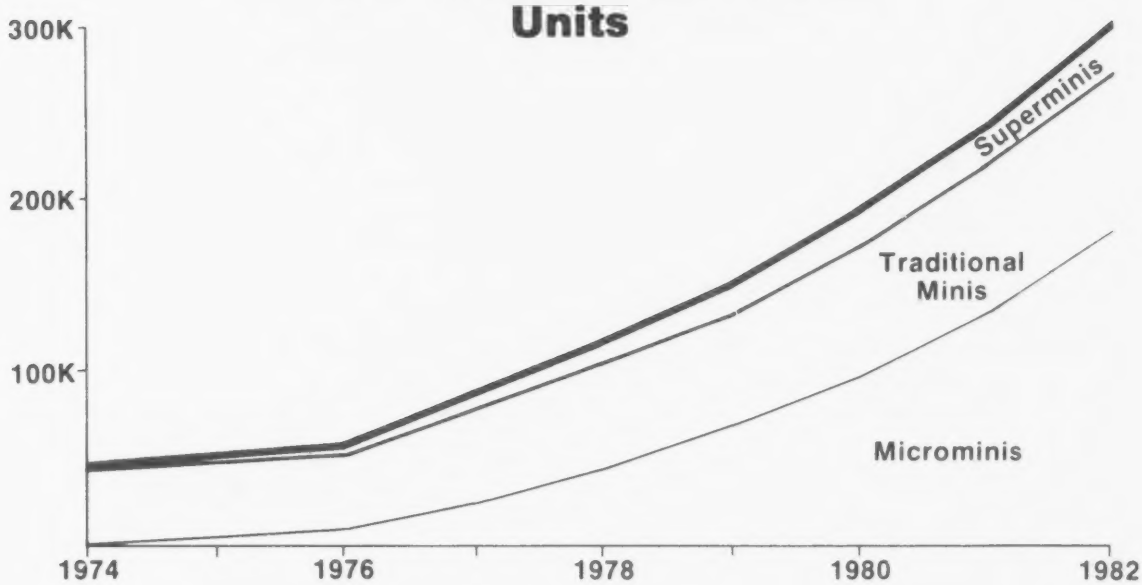
One of the most important developments during the last 18 months is that the distinction between the various types of computer is blurring rapidly. There is no need to go into the technical details separating these classes of equipment. The important point for a forms manufacturer to grasp is that computer hardware is becoming "infinitely variable." In other words, there is or soon will be a hardware configuration that precisely matches every individual need. In coming years it will be much more difficult for analysts to sort out the computer population into handy categories.

Forms manufacturers should not expect shipments to users of smaller systems to increase in direct proportion to growth in the number of such systems. For one thing, actual *use* of these new systems is going to lag well behind their delivery. The number of qualified software specialists is already a bottleneck, and this situation will get worse. Secondly, many of these smaller systems will not make much use of printers; those ordering their first computer are psychologically less bound to hard copy than those who have grown up with the computer industry.

Finally, there has been considerable talk about forms cost as part of the overall cost of operating an EDP installation. It is true that in recent times, price rises in forms have slightly outpaced price rises in other parts of the EDP industry. However, this change is expected to slow down or stop during the next five years. The biggest percentage increases are expected in the software/services category of EDP costs. Therefore, IBFI does not expect any dramatic losses due to forms management programs. It cannot be said too often that the main costs associated with paper are its distribution, storage, and retrieval. Steps to reduce those costs usually involve the use of more forms, more of which are discarded.

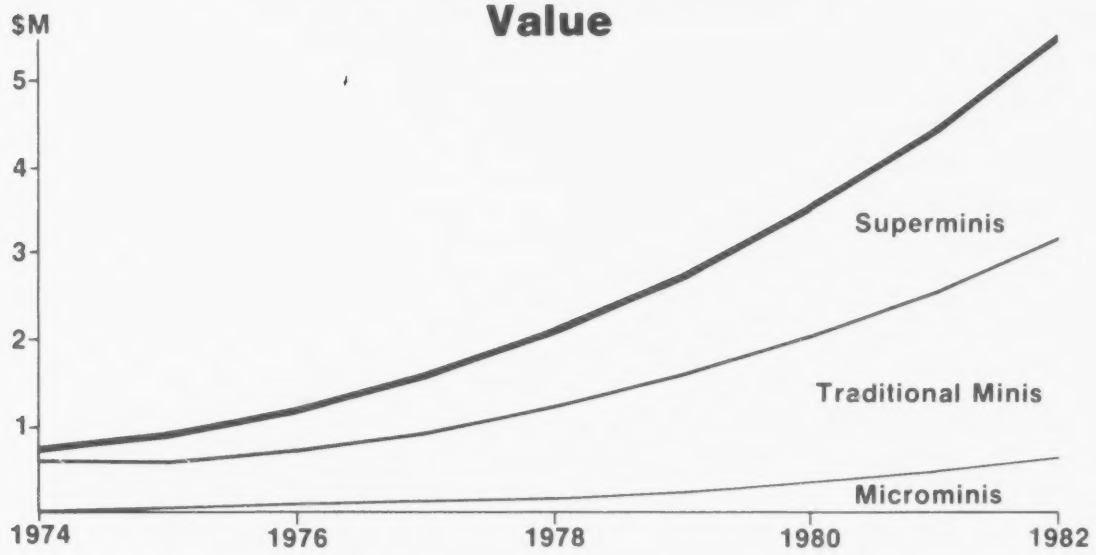
MINICOMPUTER SHIPMENTS BY SIZE CLASS

Units



MINICOMPUTER SHIPMENTS BY SIZE CLASS

Value



SOURCE: IDC

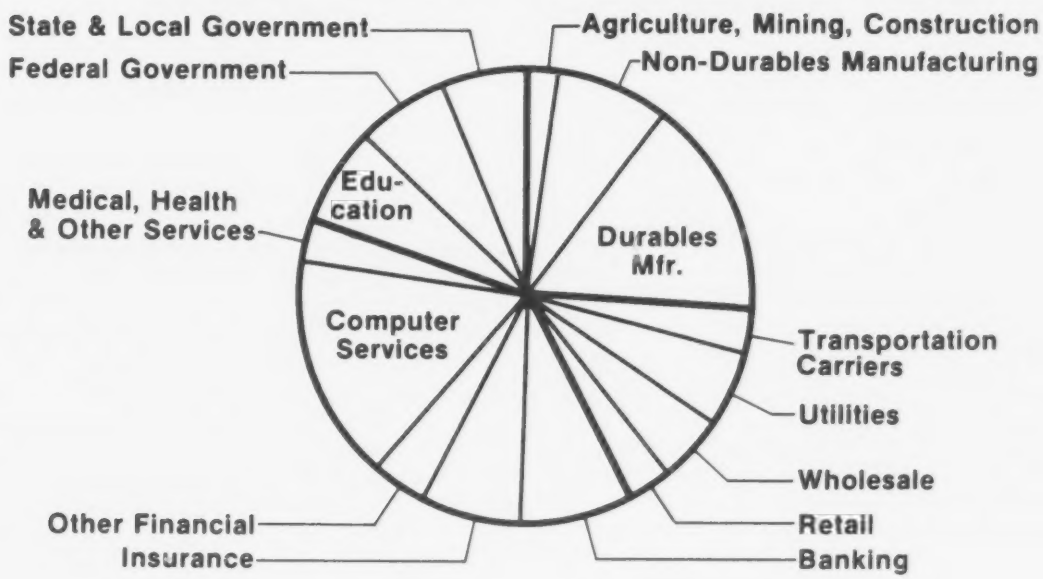
MINICOMPUTER MARKET
(U.S.-BASED MANUFACTURERS)

	Number Systems Shipped	Cumulative Number In Use	$ Million Value Shipped	$ Billion Value In Use
		UNITED STATES		
1974	33,900	96,100	$ 630	$ 1.9
1975	34,500	126,300	735	2.5
1976	42,000	162,300	1,025	3.4
1977	60,000	214,500	1,550	4.8
1978	71,000	275,300	1,990	6.5
1979	80,500	342,100	2,475	8.7
1980	93,200	417,400	3,055	11.4
1981	113,800	508,000	4,005	14.9
1982	136,000	617,500	5,110	19.5
1983	160,000	746,800	6,400	25.2

SOURCE: IDC

In this edition of *Perspective* IBFI is updating its estimates of computer use by industry. These data, last presented in 1978 from studies initiated in 1976, show little change in the overall breakdown. Significant change is not expected during the next five years, although it is possible that by the end of the decade the smaller and less expensive computers now available could change the overall apportionment of computing power.

USE BY INDUSTRY
U.S. General Purpose Computers by Value



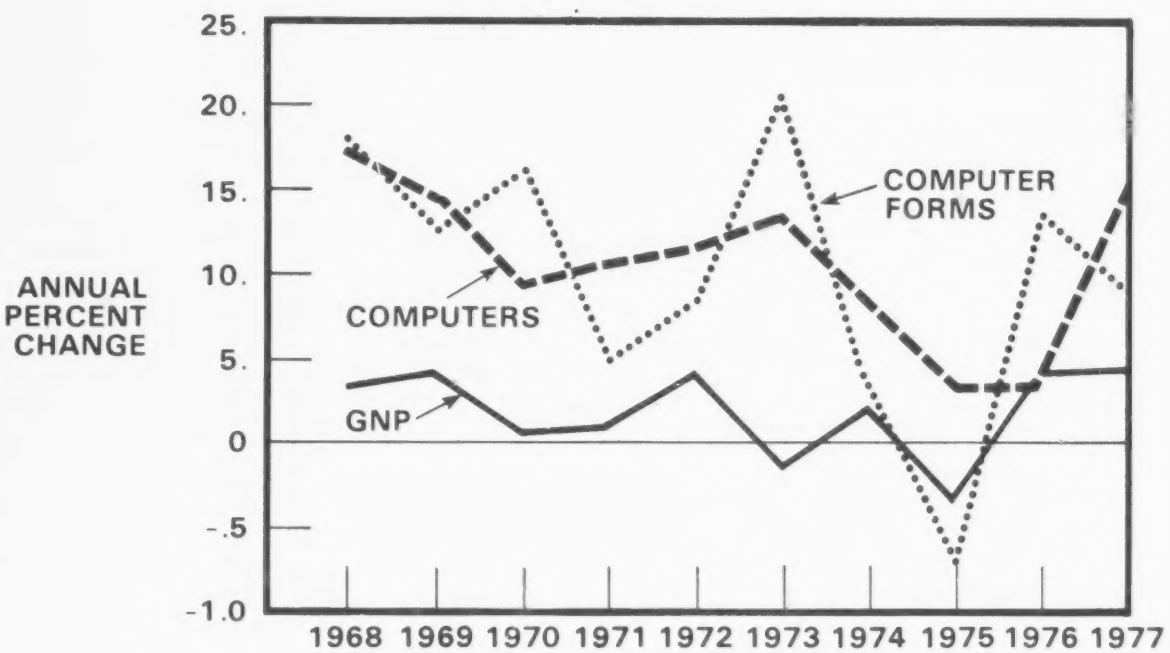
SOURCE: IDC

NOTE: Actual percentages are given on page 23.

SUMMARY: COMPUTERS AND FORMS

It is widely accepted that there is a strong connection between the field population of computers and the market for continuous forms. That statement may seem an obvious one since continuous forms are basically computer output forms. However, the relationship is *not* a simple one. Computer output forms serve many different purposes. Some are transaction documents, and as such the demand for them follows the business cycle. Others are intra-company documents which have only a loose connection with economic trends. The majority, however, - as much as 61% according to one study - are used for data storage, retrieval, manipulation, and analysis. Demand for this type of form depends largely upon the field population of computers and their printers. This relationship is further examined in Appendix A.

CONTINUOUS FORMS



COMPUTER MARKET SUMMARY (U.S.-BASED MANUFACTURERS)

	Number Systems Shipped	Cumulative Number In Use	$ Million Value Shipped	$ Billion Value In Use
		UNITED STATES		
1974	46,300	171,240	$ 7,100	$ 33.3
1975	48,300	208,640	6,650	37.8
1976	61,240	253,580	7,100	43.3
1977	87,580	322,320	8,900	50.3
1978	96,540	401,460	10,300	58.6
1979	111,200	492,200	12,150	67.7
1980	132,500	596,100	13,500	77.7
1981	159,500	720,500	15,150	88.8
1982	187,800	870,200	16,950	101.2
1983	218,500	1,046,800	18,950	115.3

This is the total of all general-purpose computers, minis, small business computers (SBCs), and "other" systems such as IBM's S/7. Minis used in SBCs are subtracted to eliminate double counting. Detailed tables follow. (General-purpose and SBC tables are mutually exclusive, but the minicomputer table includes computers subsequently shipped to users -- by the minimakers or by systems houses -- as small business computers.)

SOURCE: IDC

ELECTRONIC MAIL AND THE PAPERLESS OFFICE

A New Wave of Interest

During the last twelve months there has been a great deal of interest in developments in office equipment and business systems. It would be a mistake to think that this interest is the result of new technological development. The technology for electronic funds transfer, electronic information exchange, and less-paper-flow offices has actually been in existence for ten years and more. Nor is this the first time that some enthusiasm for such equipment has been generated. However, certain trends are likely to ensure that by the end of the decade some of this technology will indeed be a part of day-to-day office routines.

An End Result of Office Management Trends

First of all, white collar workers are an ever-increasing percentage of the workforce. Secondly, modern management techniques stress the need for more and better *information* - a need that has changed the very definition of the office to a "management information system". Both of these trends have greatly increased the amount of paperwork, both in relation to economic growth and in relation to the individual white-collar worker. Taken together, these two trends mean that the modern manager is *buried in information.* Both he and his staff receive far more information than they can manage by manual techniques.

Furthermore, white-collar productivity has remained broadly stagnant during two decades in which we have seen prodigious increases in blue-collar productivity. The reason for this divergence is simple: investment. Blue-collar productivity has been nudged along by means of investment in new plant and equipment. It is a paradox of our economy that the white-collar workers - the most highly trained members of the workforce - actually receive the lowest capital investment. The twin forces of increasing white-collar costs and decelerating shop-floor productivity gains will spur the US business community to make an assault on white-collar productivity. This assault has been made necessary by long-term macroeconomic trends. It has been made possible by techno-economic developments. Taken together, these changes are dynamic. To quote a leading consultant in the field of electronic mail, "Arguments that fell on deaf ears two years ago are arguments that can be accepted today."

Timely Technical Developments

The macroeconomic arguments have been discussed briefly above. Technical developments can be described equally simply.

- Technology is bringing down the cost of electronic mail. IBM is at work on a Document Distribution System. DEC has packaged its internal electronic message developments and will offer them to its minicomputer customers. Graphic Sciences will offer facsimile switching through a Burroughs computer. Both Xerox and AT&T are looking at specialized electronic mail subnets for the trucking, legal and banking industries. And there are more.

- Verbal electronic transfer systems are becoming a technical and economic reality. Firms installing such systems have reported 50% reduction of external telephone calls and 75% reduction of telephone memos.

- Sophisticated switching devices such as ITT's Com/Pak are now available, allowing incompatible computers and terminals to communicate with each other regardless of the manufacturer or language.

- Although some 90% of the word processors currently installed are stand-alone, with no communications capability, virtually all of the new models offer this feature.

- In the current atmosphere of deregulation, the Federal Communications Commission (FCC) is dramatically reducing the barriers to entry into the common-carrier industry.

Impact On The Forms Environment

So what will this new impetus mean to the business forms industry? It's still too early to predict but it's clear that this *could* be a big new market for forms. IBFI predicts that large firms - typically, members of the "Fortune 500" set - will be installing systems of this sort in the next two years. By 1985, the experiences from this initial entry into the field along with the decreasing performance-price ratio typical in electronics industries will bring this technology within the reach of medium-sized firms. By 1990, all but the smallest firms will have the resources and the impetus to benefit from this technology. What we will see after the dust has settled down a bit will be integrated, office-oriented information systems. Sometimes described as "word processing with computer interaction", such systems will feature text editing, electronic filing and retrieval, computer graphics, and output on a wide choice of devices (including hard copy printers, terminals, and photocomposition equipment). The devices will be able to send information and messages across the country, halfway around the world - or to the next office.

The important thing is that *this equipment will use paper.* The cost of storing paper, transporting it, or retrieving it is much greater than the costs of buying it and printing it. So such systems typically produce much more paper than do manual systems. Of course, most of this hard copy will simply be thrown out or otherwise disposed of, but that will make little difference to whoever is selling that paper. True, much of the hard copy generated by such equipment would probably use completely blank paper. No doubt a fair amount of that paper will be cut size. Much of this equipment will probably have some formatting capability. *But the fact remains that a lot of it could be converted and sold by forms manufacturers.* This is a market that will definitely bear watching beginning in the mid-1980's.

CONCLUSION

It seems that every year the gloom-and-doom merchants in our industry spy another technology on the horizon that means the "end of forms as we know them". Nor is it unwise to keep a weather eye to that technical horizon. As the preceding pages have amply demonstrated, technology has been a major force in the forms industry's growth and development for the last twenty years and more. This situation is unlikely to change. An objective commentator must also admit that such change is not always to the good of the industry. It is for that reason that in revising upwards our estimates of near and medium-term industry shipments, we have added the *caveat* that we must revise downwards our long-term view. The reason for this apparent contradiction is, regrettably, not a statistical one. IBFI's view is that technological change comes slowly - always more slowly than originally predicted. Those original forecasts assume perfect rationality on the part of managers and a perfectly frictionless world. In other words, managers are human beings, not mechanical decision-making machines. They have inertia, some fear of the new and unknown, and an understandable reluctance to be among the first to rush into major new investments. As for friction, such new technologies usually presume, if not dictate, changes in established procedures and personnel. Changing people and systems that are known to work, however imperfectly, for equipment that is advertised as working even better is not a decision to be made lightly. And people do not make that decision lightly. So technological change comes slowly to the marketplace - *but when it comes, it comes with a heavy hand.*

This warning is not meant to convey a threat that in ten - or fifteen, or twenty - years' time, the forms industry will no longer exist. Many people have said many times that lower system costs often mean higher paper costs, and such repetition has not lowered the accuracy of this statement. Throughout most of this century, paper usage has increased at a steady long-term average of twice the rate of real economic growth. In our legal and social systems we remain extremely paper-bound despite the growing existence of devices that could reduce this dependence. It will likely take at least another generation to make any impact on this relationship, and in fact environmental factors are likely to start affecting the growth of paper usage long before more generalized socio-economic changes have much influence. However, changing technologies will present a major challenge to the forms industry some ten years down the road. The performance-to-price ratio of non-impact printers, intelligent copiers, and other equipment more or less capable of formatting will continue to decline. By the end of the decade, the US economy will be witnessing a major attack on the productivity of the white-collar worker. This worker is an ever-larger part of a firm's costs and is coming to dominate the labor force. Yet his productivity stagnates as both his salary and his overhead spiral upward. *The main reason for the divergence of cost and output is lack of investment.* As the microprocessor matures, sophisticated information-handling equipment will become a more and more important part of office operations. In the past the forms industry has managed to make the most of such changes.

There is no reason why a new set of changes should prove unconquerable. Most of these new devices use paper, and since sales of impact printers are still at healthy levels we can say these devices mean more paper and more forms. But many traditional products will stagnate as we look beyond *Perspective's* customary five-year cut-off. In particular, we foresee *much more one-part work.* In general, the industry will become more a converter and less a printer at the back end. At the same time, service will be increasingly important at the front end. So value added potential will be squeezed on the shop floor, but will expand in the sales offices. All in all a flexible attitude and an awareness of changing markets will allow forms executives to continue to increase their firms' shipments despite the eventual waning of the market for "traditional" computer output forms.

In fact, challenges to the individual firm, as opposed to the industry as a whole, will come largely from internal trends only peripherally associated with technological change. The composition of our industry is going through changes as important as the technological changes which are affecting

our markets. There has been a lot of talk about industrial cycles - about infancy and old age, youth and maturity. Some analysts were ready to put the whole industry to bed, complete with death watch, as early as four years ago. And consolidations will carry on. We will continue to see the odd merger. Acquisitions will carry on and very likely intensify. Investment in our industry from capital-rich, opportunity-poor corporations previously outside of the industry will continue, but at a low level. Yet at the same time, the discovery of new markets such as users of small-business and mini-computers is giving the bottom end of our industry a new vitality. There still seems to be a new forms printer coming out of the woods for every firm that loses its corporate identity. After five years of rather mixed results, we are again seeing prospects of a period of healthy, sustained growth (barring, of course, the next 12 to 18 months of recession).

Furthermore, technological change over the next five to ten years will probably have more impact on how we manufacture forms than on what sort of, or how many, forms we manufacture. The microprocessor is sure to cause substantial change in our prepress and makeready systems. As in the case of the EDP industry, this change will be evolutionary rather than revolutionary. It will nonetheless make it more challenging for the average forms company to remain competitive in the areas of service and turn-around times. There will be other internally generated pressures as well. The largest firms in our industry have lost substantial market share both individually and collectively over the last five years. That loss has resulted from growing less rapidly than the industry as a whole rather than from declining sales. Nonetheless, the history of these firms indicates that they are likely to react vigorously. Similarly, new entrants and the expansion of established firms seems certain to mean that the industry will continue to suffer from overcapacity.

IBFI SPECIAL REPORTS

The main functions of *Perspective* are to present our annual update at the 5-year sales forecast and to provide a detailed analysis of the previous year's results. Another important task is to present the latest facts and theories on relevant trends in the industries which have the greatest impact on the forms market. Finally, IBFI uses *Perspective* as a vehicle for presenting the results of any special research projects carried out during the year. This edition contains two such reports, one on seasonality in the forms industry and the other on connections between GNP and forms.

APPENDIX A: GNP AND FORMS

Analysts in any industry spend much of their time searching for "leading indicators". This phrase is a bit of jargon referring to statistical series which move in the same direction as sales in one's own industry, but at an earlier time. Such a series indicates at the present in what direction sales will move in the future, hence the phrase "leading indicators".

If such an indicator can be found for the forms industry, it would obviously be a great help to forecasters of industry sales. Since the early Sixties, many forms analysts have looked to changes in GNP as a leading indicator. Indeed, to quote from *Perspective 1979:*

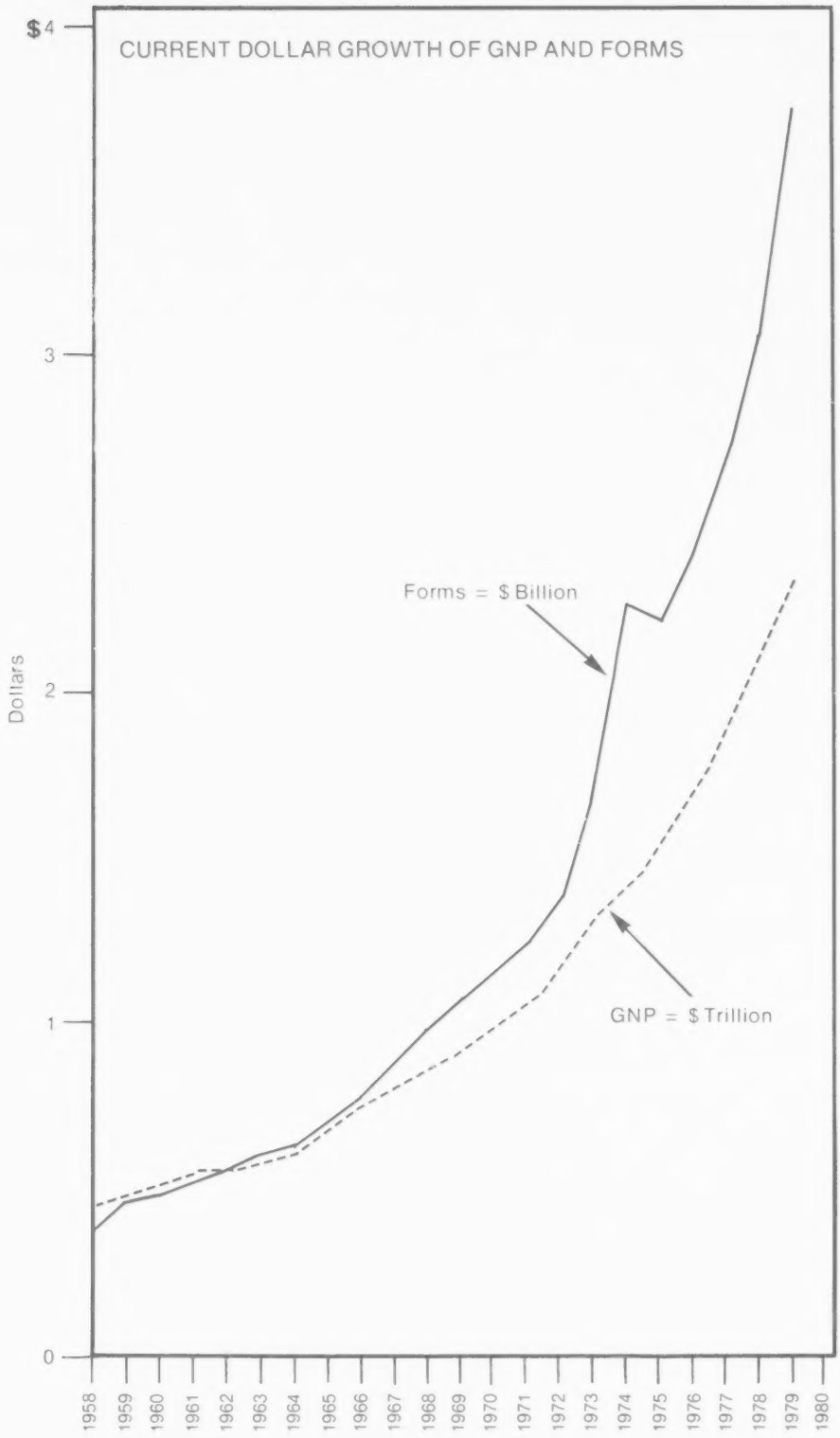
> It has been widely assumed that changes in GNP precede changes in forms shipments. The debate centers on how many quarters GNP changes before forms shipments change.

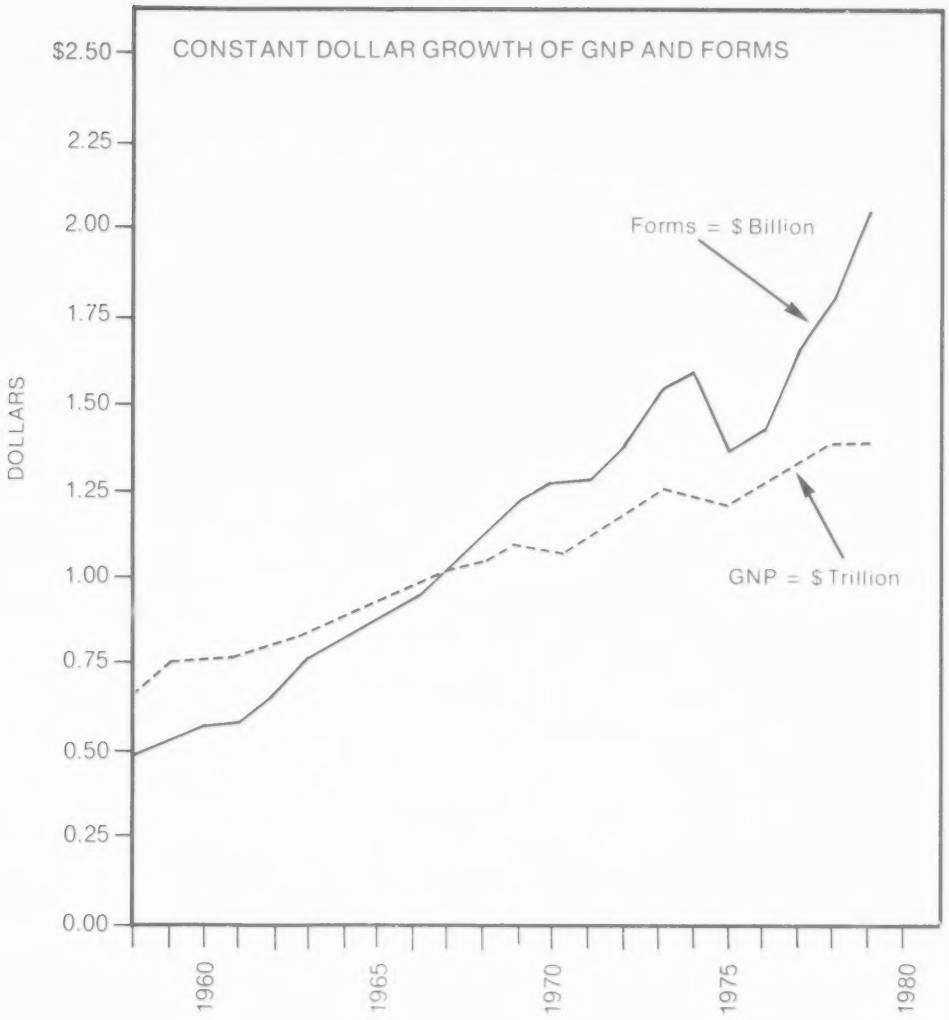
The notion that the time lag was not a constant was first aired in these pages. Similarly, the importance of computers in place as a correlating factor was developed in *Perspective*. In the past eighteen months, IBFI has taken yet another look at this topic. The preliminary results are presented here in graphic form.

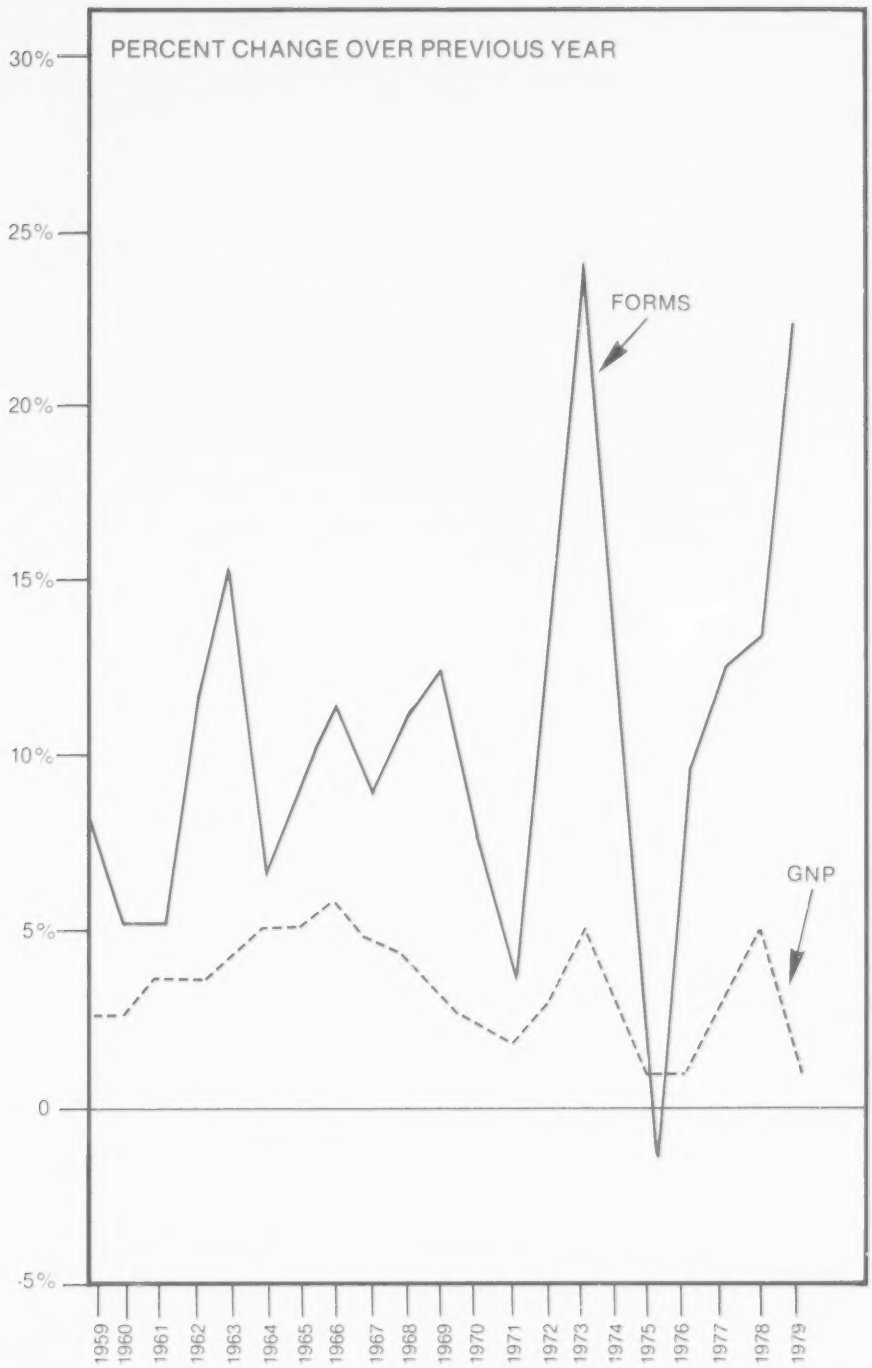
If we compare current dollar growth of GNP and forms, it becomes immediately apparent that GNP growth since 1958 has been an important determinant of forms sales. Also, it seems at first glance that while forms sales have grown faster than GNP since about 1966, the differential between the two rates of growth has been relatively constant.

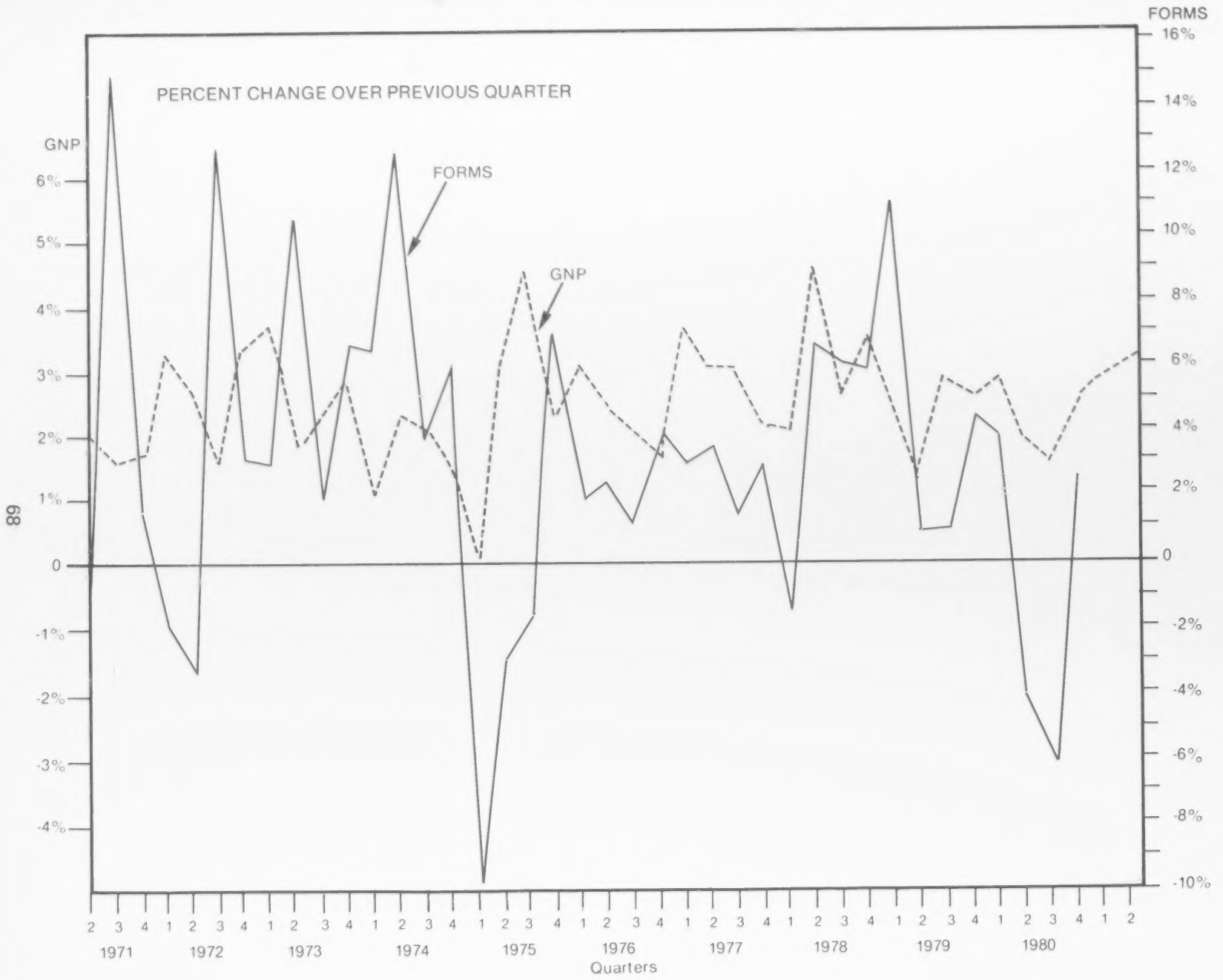
However, if both those series are deflated, a rather different picture emerges. First of all, the possible correlation becomes much cruder. Secondly, since the early Seventies changes in forms sales seem to have been exaggerated compared to changes in GNP.

Looking at year-to-year percentage changes in forms and GNP emphasizes that the relationship is a complex one. And when we take this series and break it down into quarter-to-quarter percentage changes, confusion reigns supreme.


CURRENT DOLLAR GROWTH OF GNP AND FORMS
$4
3
2
1
0
Dollars
Forms = $ Billion
GNP = $ Trillion
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980


CONSTANT DOLLAR GROWTH OF GNP AND FORMS
$2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
DOLLARS
Forms = $ Billion
GNP = $ Trillion
1960
1965
1970
1975
1980


PERCENT CHANGE OVER PREVIOUS YEAR
30%
25%
20%
15%
10%
5%
0
-5%
FORMS
GNP
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979


PERCENT CHANGE OVER PREVIOUS QUARTER
GNP
FORMS
FORMS
GNP
6%
5%
4%
3%
2%
1%
0
-1%
-2%
-3%
-4%
16%
14%
12%
10%
8%
6%
4%
2%
0
-2%
-4%
-6%
-8%
-10%
2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
Quarters

If one pauses to consider the *concept* of GNP as a leading indicator for forms sales, this confusion becomes logical. The main question is causality. While GNP *ultimately* causes changes in forms sales, it does so indirectly, because forms are a derived and not a primary demand (in other words, unlike automobiles, nobody purchases forms for their own sake). In that sense, GNP ultimately causes changes in every industry. Therefore, proving that there is some crude correlation between GNP and forms sales *does not prove* that GNP is a leading indicator which can be useful in forecasting forms sales. In fact, these graphs demonstrate that there are major problems in using GNP as a precise forecasting tool:

1. The time lag between changes in GNP and changes in forms sales has been anything but constant.

2. The ratio of changes in forms sales to changes in GNP has also been unpredictable.

Therefore, this research suggests that GNP is a very unsatisfactory leading indicator for forms sales. And 1979 has demonstrated how unpredictable this relationship can be, with forms up 14% in real terms and GNP up by little over 1%.

APPENDIX B

SEASONALITY IN THE FORMS INDUSTRY

Efforts directed toward one project or problem can often have interesting effects in other spheres. This process is a well-known one, sufficiently well-known in fact to have its own bit of jargon - "spin-off". In modern times, the US space effort has produced the best-known examples of spin-off, but the concept is hardly a space-age one. Its antecedents date back at least as far as the mid-18th century, when research into the accurate boring of cannon barrels made possible the pistons used in early steam engines. IBFI is currently in the midst of an 18-month long update of its forecasting techniques. One requirement of this process was the production of new, more accurate time series of industry shipments. In the course of establishing these series, IBFI experienced a spin-off - the discovery that the forms industry as a whole has a stable, well-defined seasonal pattern.

The process by which this hypothesis was tested is described in considerable detail in an appendix. Suffice it to say here that the methodology is quite simple although its inner mathematical workings can become quite complex:

- First, we established a monthly time series for a ten-year period, using IBFI's research records and correlating the results with government statistics where possible.

- Then we examined the series both manually and via a computer program to redefine the "irregular components", a bit of jargon which means that some values in the most carefully constructed series will be spurious and require adjustment.

- Using the modified data base, we assigned seasonal values to each month in the series.

- We checked the reliability of those values by:
  - examining the ratio of the seasonal factors to the standard deviation;
  - comparing the seasonal factors with 3-month, 12-month centered, and 13-month pressure-sensitive moving averages;
  - looking at the effects of the seasonal factors upon the extreme values in the series.

- We check for the year-to-year stability of the seasonal factors by:
  - exhaustive sum-of-squares analysis;
  - calculating degrees of freedom;
  - comparing with mean squares.
  - examining year-to-year changes in irregular and seasonal components and the moving ratio of seasonality.

All these manipulations have obtained some practical and interesting results. A pronounced seasonal pattern was revealed. Furthermore, although the seasonal adjustment factors have changed gradually in the course of the decade, those factors have exhibited stability to within 1% during any 12-month period. The table below shows the final seasonal factors for total sales of business forms, *including a forecast for seasonal factors for 1980,* arrived at by marrying the historical data with economic projections.

SEASONAL FACTORS FOR THE BUSINESS FORMS INDUSTRY

YEAR:	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	AVGE.
1971	95.3	92.4	110.9	96.3	94.0	102.9	93.8	101.1	103.0	104.5	101.3	103.9	100.0
1972	95.6	92.7	110.6	96.7	94.4	103.0	94.1	100.4	102.7	104.1	101.0	103.8	99.9
1973	96.0	93.4	110.2	97.6	95.3	102.9	94.6	99.0	102.0	103.6	100.4	103.6	99.9
1974	96.5	94.2	109.8	99.0	96.1	102.8	95.1	97.2	101.1	102.8	99.6	103.2	99.8
1975	97.3	95.0	110.1	100.6	96.8	102.9	95.3	95.5	100.7	102.0	98.7	102.9	99.8
1976	98.2	95.6	110.9	102.0	96.8	103.1	95.1	94.2	100.6	101.4	97.7	102,7	99.9
1977	98.9	95.7	112.0	103.0	96.7	103.3	94.6	93.7	100.7	101.0	96.8	102.5	99.9
1978	99.2	95.9	112.9	103.6	96.6	103.2	94.2	93.6	100.6	100.9	96.5	102.4	100.0
1979	99.3	95.9	113.3	103.8	96.6	103.0	94.0	93.5	100.6	100.9	96.4	102.4	99.9
1980	99.3	96.0	113.5	103.9	96.6	103.0	93.8	93.5	100.7	100.9	96.3	102.5	100.0

Understanding the Table

Once the reader understands how to interpret this data, its meaning becomes clear. 100 = a perfectly average month, and would mean that sales during that month were exactly 1/12, or 8.5%, of total sales during the year. Values above 100 mean that sales in that month were above the expected statistical average even after allowing for fluctuations due to the cyclic behavior of the economy and for irregularities in sales. Values below 100 mean that sales were below that average.

Thus, the table shows that March has consistently shown the strongest sales by a wide margin. July has nearly as consistently been the weakest month. In broader terms, the first quarter has historically been the strongest while the third quarter has been the weakest. In still broader terms the first half of the year has been stronger than the second half, with the proviso that December is usually a strong month, giving some sparkle to an otherwise lacklustre quarter. Put another way, there is usually a strengthening of sales in the first months of the year, an average performance in the late spring to early summer and a weakening of business from July through November.

Furthermore, most of the shifts which occurred in this pattern are prior to 1976. Over that last 3 to 3½ years, seasonality has been very stable both within years and between years. Nearly 70% of monthly variations in business forms sales is accounted for by seasonal factors, with 20-25% of monthly variations ascribed to cyclical factors (e.g. the economic climate) and only from 7-11% accounted for by irregular movements. (Of course, as we combine the data into bigger chunks, this relationship changes. In 2-month chunks, only some 62% of bi-monthly variations can be attributed to seasonality, and if one moves to a quarterly, or three-monthly, analysis, then cyclical factors become dominant).

In short, there is little reason to assume that there will be much change in this seasonal pattern over the next year or two.

Using the Table

A Simple Explanation of the Mechanics

The mechanical process of using seasonal factors is simplicity in itself. If the seasonal factor for March is 113.3, then in order to smooth out that data, we divide it by that factor, e.g.:

Forms Sales, March, 1979 = $365,872,000[e].
Seasonal Adjustment Factor = 113.3

$$\frac{\$365,872,000}{1.113} = \$328,725,966 = \text{seasonally adjusted sales value.}$$

So what has happened to the $37,146,034 that has just been eliminated from the March figures? It is redistributed to other months. February, 1979, for example, was assigned a seasonality factor of 95.9; let's see what happens:

Forms Sales, February, 1979 = $286,589,000[e].
Seasonal Adjustment Factor = 95.9

$$\frac{\$286,589,000}{.959} = \$298,841,502 = \text{seasonally adjusted sales value.}$$

Thus we have picked up $12,252,502

e: estimated

BEST AVAILABLE COPY

APPENDIX C

Preliminary 1977 Census Figures

Table 1. Industry Statistics: 1977 and Earlier Years

(For explanation of terms, see appendix B)

Year[1]	All establishments		All employees		Production workers			Value added by manufacture	Cost of materials	Value of shipments	Assets and expenditures		End-of-year inventories	Ratios	
	Total number	With 20 employees or more number	Number 1,000	Payroll million dollars	Number 1,000	Hours millions	Wages million dollars	million dollars	million dollars	million dollars	New capital expenditures million dollars	Gross value of fixed assets million dollars	million dollars	Specialization ratio percent	Coverage ratio percent
	INDUSTRY 2761, MANIFOLD BUSINESS FORMS														
1977 Census...	794	477	45.3	574.6	33.3	67.3	390.9	1,479.1	1,420.2	2,883.5	82.1	909.0	336.7	44	94
1976 ASM*.....	NA	NA	38.8	468.0	29.2	58.4	317.1	1,201.7	1,132.9	2,327.9	58.6	759.1	289.6	NA	NA
1975 ASM*.....	NA	NA	40.2	440.1	29.8	58.4	292.0	1,155.5	1,024.7	2,184.9	74.6	728.0	283.2	NA	NA
1974 ASM*.....	NA	NA	44.5	445.8	33.8	67.9	309.4	1,325.1	1,013.8	2,304.6	67.4	654.6	348.9	NA	NA
1973 ASM*.....	NA	NA	40.9	385.6	30.6	62.5	264.8	978.6	734.9	1,708.4	52.2	587.0	196.6	NA	NA
1972 Census...	667	376	38.6	343.6	28.8	58.6	235.2	823.6	612.3	1,429.7	45.8	547.8	143.8	93	92
1971 ASM.....	NA	NA	37.4	320.6	27.6	58.2	215.6	727.7	550.3	1,277.7	50.6	534.6	133.3	NA	NA
1970 ASM.....	NA	NA	39.7	317.1	29.7	60.7	215.4	721.9	543.3	1,264.8	54.7	499.0	131.0	NA	NA
1969 ASM.....	NA	NA	37.1	287.7	28.1	57.7	190.5	667.1	487.9	1,132.2	48.6	423.1	120.7	NA	NA
1968 ASM.....	NA	NA	35.4	263.2	26.1	54.6	173.1	607.6	431.2	1,031.4	43.2	383.2	112.1	NA	NA
1967 Census...	542	295	34.4	240.2	25.3	51.4	158.9	550.5	384.6	932.3	39.8	340.4	98.4	91	90
1966 ASM.....	NA	NA	31.6	208.3	23.1	48.5	140.3	486.4	345.6	823.9	44.4	NA	90.7	NA	NA
1965 ASM.....	NA	NA	30.3	192.3	22.3	46.6	128.6	436.5	308.5	739.7	29.5	NA	80.1	NA	NA
1964 ASM.....	NA	NA	28.8	177.8	21.5	44.8	120.7	401.3	281.3	679.6	22.2	233.8	69.2	NA	NA
1963 Census...	502	250	28.8	173.2	21.3	43.3	116.7	377.7	254.3	637.7	23.1	209.4	64.4	90	91

*Data either have associated standard errors exceeding 15 percent or are not consistent with other census series and related data, thus these estimates may be of limited reliability. (NA Not available.

[1]In years of Annual Survey of Manufactures (ASM), data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. For data prior to 1963, see 1963 Census of Manufactures, vol. II, table 1 industry chapter.

Table 2. Industry Statistics by Geographic Areas: 1977 and 1972

(For explanation of terms, see appendix B)

Geographic area	1977											1972	
	All establishments		All employees		Production workers			Value added by manufacture million dollars	Cost of materials million dollars	Value of shipments million dollars	New capital expenditures million dollars	All employees 1,000	Value added by manufacture million dollars
	Total number	With 20 employees or more number	Number 1,000	Payroll million dollars	Number 1,000	Hours millions	Wages million dollars						
	INDUSTRY 2761, MANIFOLD BUSINESS FORMS												
United States	794	477	45.3	574.6	33.3	67.3	390.9	1,479.1	1,420.2	2,883.5	82.1	38.6	823.6
New England Division:													
New Hampshire	5	4	.6	7.3	.4	.9	4.9	14.1	12.4	31.2	.6	CC	D
Vermont	3	3	.5	6.5	.4	.9	5.0	23.8	18.6	42.2	1.2	BB	D
Massachusetts	12	11	.6	8.9	.5	.9	5.5	17.3	13.2	30.6	.3	CC	D
Connecticut	16	11	.9	12.4	.7	1.4	9.1	31.1	41.5	72.4	3.9	.8	20.1
Middle Atlantic Division:													
New York	73	33	2.7	37.2	2.0	4.0	23.8	82.3	73.7	156.2	3.1	2.5	47.4
New Jersey	32	15	1.0	12.9	.7	1.3	7.4	26.1	22.4	48.4	D	CC	D
Pennsylvania	50	32	3.1	41.6	2.4	5.1	30.5	144.4	147.7	290.4	6.9	FF	D
East North Central Division:													
Ohio	36	21	3.6	46.9	2.8	5.5	35.6	125.4	109.8	234.0	7.1	3.2	78.7
Indiana	11	6	.8	10.5	.6	1.2	7.1	31.9	22.5	53.8	D	.7	16.5
Illinois	59	39	3.5	49.1	2.6	5.3	34.3	116.6	123.3	239.0	7.5	3.4	73.9
Michigan	33	16	1.3	18.7	.8	1.6	10.8	37.6	46.8	84.3	2.3	1.0	14.2
Wisconsin	18	13	1.2	15.9	.9	1.8	10.6	48.6	55.7	103.8	1.5	1.0	24.6
West North Central Division:													
Minnesota	15	8	.5	7.0	.4	.7	3.9	13.3	11.7	24.9	.9	BB	D
Iowa	14	11	.9	11.9	.7	1.4	7.3	29.9	25.6	55.1	1.0	.6	13.6
Missouri	20	10	.9	9.2	.7	1.2	6.2	18.9	25.1	44.0	1.7	.9	14.1
Kansas	14	10	1.2	13.8	1.0	2.0	9.7	26.4	24.1	50.4	1.9	1.0	14.2
South Atlantic Division:													
Maryland	14	8	1.5	15.4	1.0	1.9	10.5	40.6	46.6	88.2	2.9	1.3	27.1
Virginia	14	11	1.0	10.6	.7	1.4	7.6	33.5	34.2	71.4	2.6	.8	14.7
North Carolina	27	15	.9	11.0	.7	1.4	8.3	22.2	23.3	45.2	1.2	.8	10.3
Georgia	28	16	1.1	12.2	.8	1.6	8.6	33.8	26.8	62.5	2.4	BB	D
Florida	24	14	.7	9.1	.5	1.0	5.9	18.4	14.0	37.2	1.2	.8	13.1
East South Central Division:													
Kentucky	4	3	.6	5.7	.5	.9	4.3	18.7	10.2	28.2	1.2	AA	D
West South Central Division:													
Louisiana	11	8	.5	5.3	.4	.7	3.5	12.5	7.7	20.3	.4	AA	D
Oklahoma	9	6	.8	9.1	.6	1.2	6.3	22.6	27.6	49.2	D	.8	12.6
Texas	48	32	4.3	49.9	3.1	6.6	31.8	115.0	101.7	215.9	6.4	3.4	64.3
Pacific Division:													
Oregon	14	9	.7	9.2	.5	1.1	6.6	30.8	26.5	56.8	1.8	.6	16.3
California	96	60	4.9	66.5	3.6	6.8	43.2	183.9	186.8	346.8	9.8	3.9	99.1
All other States	94	52	5.0	60.8	3.3	7.5	42.4	152.4	150.7	300.6	D	NA	NA

Note: Statistics for some producing States have been withheld to avoid disclosing operations of individual companies and to permit further verification of data for smaller producing States. Data for all States will be included in final publication if figures do not disclose information for individual companies. For 1972, the following employee size ranges substitute for actual figures withheld to avoid disclosure: AA, 150 to 249 employees; BB, 250 to 499 employees; CC, 500 to 999 employees; EE, 1,000 to 2,499 employees; FF, 2,500 employees or more.

(D) Withheld to avoid disclosing operations of individual companies. NA Not available.

BEST AVAILABLE COPY

Table 3. **Products and Product Classes — Value of Shipments by All Producers: 1977 and 1972**

(Includes value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation see appendix B, Value of shipments)

1977 product code	Product	1977		1972, value of product shipments (million dollars)
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	
	MANIFOLD BUSINESS FORMS			
2761- --	Total	(NA)	2,721.2	1,381.9
27612 --	Unit set forms	(NA)	891.6	514.2
	Unit set forms, loose or bound (all carbonless, carbonized, or carbon interleaved forms with an original and one or more copies, with or without stub), including food and beverage checks, multiple part tickets, etc.:			
	Stock, including imprinted:			
27612 13	One-time carbon	67	73.7	46.7
27612 15	Carbonless	29	31.3	8.4
	Custom printed:			
27612 53	One-time carbon	272	561.5	335.3
27612 55	Carbonless	193	149.0	75.7
27612 61	Tabulating card sets (any combination of one or more cards assembled and joined with any number of sheets, with or without carbon, held together by a common perforated stub, not in continuous style)	15	49.3	40.8
27612 00	Unit set forms, n.s.k.	(NA)	26.8	7.3
27613 --	Manifold books, including sales and pegboard accounting systems	(NA)	129.2	51.5
27613 11	Pegboard accounting systems	19	53.2	(2)
	Sales and other manifold books, including food and beverage checks and padded forms that may be used for multiple writing, but excluding blank or rule padded forms:			
27613 22	Stock	15	18.7	29.5
27613 42	Custom printed	25	57.1	240.6
27613 00	Manifold books, including sales and pegboard accounting systems, n.s.k.	(NA)	.2	1.4
27615 --	Custom continuous forms, with or without carbon, marginally punched or not marginally punched (single or multiple copy custom forms usually printed on separate sheets which are fastened or unfastened)	(NA)	923.0	553.6
	Custom tabulating cards (in continuous form, with or without a medial strip between cards, with or without a slide voucher, or top or botton voucher):			
27615 23	One part	21	37.0	13.6
27615 27	Multiple parts	26	57.1	9.8
27615 31	Custom fanfold (multiple copy form of two or more parts, in which the parts are hinged or hinged and joined at the sides, including any combined form in which 50 percent or more of the parts are so hinged)	31	63.4	17.4
27615 51	Custom autographic register (any form of any number of parts in continuous folded packs sold for use in an autographic register machine)	15	28.5	22.9
27615 55	Self-mailer forms (a continuous form integrated into a continuous envelope)	11	39.4	(3)
	All other custom printed continuous forms:			
27615 58	One part	50	171.3	399.6
	Multiple parts:			
27615 62	One-time carbon	72	420.2	3341.8
27615 64	Carbonless	38	71.6	343.0
27615 00	Custom continuous forms, with or without carbon, marginally punched or not marginally punched, n.s.k.	(NA)	34.5	5.5
27617 --	Stock continuous forms (single or multiple copy stock forms usually printed on separate sheets which are fastened or unfastened)	(NA)	604.9	204.9
	Stock shelf forms (standard body, standard size forms, usually run in large quantities and inventoried):			
27617 61	One part	45	169.2	50.3
	Multiple parts:			
27617 63	One-time carbon	53	293.4	114.4
27617 65	Carbonless	18	37.8	4.3
	Stock format forms (shelf type stock forms, specially manufactured to supply such additional features as fastening, file hole punching, perforation, ink colors, paper color or sequence, and/or number of parts, but which are not further identified by customer):			
27617 71	One part	21	36.1	4.8
	Multiple parts:			
27617 73	One-time carbon	31	41.8	20.5
27617 75	Carbonless	16	11.1	4.5
27617 79	All other stock forms, including stock tabulating cards, fanfold, and autographic register	13	8.7	2.8
27617 00	Stock continuous forms, n.s.k.	(NA)	6.8	3.3
27610 00	Manifold business forms, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	119.4	47.6
27610 02	Manifold business forms, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	53.1	10.1

Note: In 1977 Census of Manufactures, shipments data for establishments of small companies, typically those with less than 10 employees, were estimated from administrative records data rather than collected from respondents. These shipments figures (discussed in appendix A) are included in code ending with "002." In both 1977 and 1972 Censuses of Manufactures, products not completely identified on standard forms were coded to appropriate product class (5 digits) followed by "00," or in some cases to appropriate industry (4 digits) followed by "0 00."

[1]Value reported by all producers of product, not just those with shipments of $100,000 or more.
[2]For 1972, product code 27613 11 was included with product codes 27613 22 and 27613 42.
[3]For 1972, product code 27615 55 was included with product codes 27615 58, 27615 62, and 27615 64.

BEST AVAILABLE COPY

Table 4. Materials Consumed by Kind: 1977 and 1972

(Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation see appendix B, Cost of materials)

1977 material code	Material	Unit of measure	1977		1972	
			Quantity[1]	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	INDUSTRY 2761, MANIFOLD BUSINESS FORMS					
	Materials and supplies		(X)	1,295.6	(X)	559.2
262111	Newsprint (all weights)		(X)	5.6	(X)	2.5
	Coated papers:					
262136	Coated one side		(X)	22.6	(X)	7.0
262138	Coated two sides		(X)	10.6	(X)	12.3
	Uncoated papers:					
262102	Groundwood, book, bond, writing, ledger, and manifold	1,000 s. tons	(S)	603.2	(X)	291.7
262150	Bristols, cover, text, and other specialty paper	1,000 s. tons	(S)	22.0		
263105	Paperboard, excluding that used for shipping		(X)	2.9	(X)	1.4
	Printing inks:					
289301	Purchased and consumed, complete formulations (all types)	Million lb	(S)	11.8	(S)	6.0
289301	Produced and consumed at the same establishment	Million lb	(S)	(X)	(S)	(X)
	Carbon paper:					
	Purchased and consumed:					
262164	Carbonizing tissue stock for conversion into one-time carbon paper	1,000 s. tons	100.3	72.5	115.1	46.1
395523	One-time carbon paper		(S)	86.6	83.7	53.0
	Produced and consumed at the same establishment:					
395523	One-time carbon paper		(S)	(X)	(S)	(X)
262163	Carbonless paper	1,000 s. tons	*110.3	101.3	50.1	34.8
970099	All other materials and components, parts, containers, and supplies, including metal type		(X)	211.3	(X)	[2]71.0
971000	Materials and supplies, n.s.k.[3]		(X)	145.2	(X)	33.4

(S) Withheld because estimate did not meet publication standards. (X) Not collected. n.s.k. Not specified by kind.

[1]For some establishments, data have been estimated from central unit values, which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * indicates 10 to 19 percent estimated, ** indicates 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1972, pressure sensitive base stock accounted for $1.9 million.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.